

## 5. Pest Management... the Natural Way

Urban lawns still feature grass more than any other plant, but more and more are taking on a naturalized look. Usually an urban lawn will have a main area of grass with garden beds combining annuals, perennials, flowering shrubs, evergreens, ornamental grasses and trees. There is a definite trend towards more drought tolerant and disease resistant varieties. Most local garden centres now carry these plants.

Gardeners add plants to their gardens that provide year round interest in terms of colour, form, fruit or flower. Water features are becoming more common and butterfly gardens are particularly popular. Perennials, ground covers and mulching materials are also more often seen in the landscape. An increasingly common sight is homes whose entire front lawns have been replaced with mixed gardens.

In southern Ontario gardens, magnolias and flowering apples are popular choices for ornamental trees. Commonly seen evergreens include cedars and spruce. New tree plantings indicate a trend away from particular tree species, such as Austrian pines, that tend to be more susceptible to problems.<sup>18</sup>

The following section describes natural ways to address common pests, including weeds, insects and diseases, on lawns, plants and trees. You may also wish to consult an expert for advice. For weeds and insects common to lawns, photos are provided to aid in identification.



**For other pests described in this guide, the following resources provide more detailed photos and information:**

OMAF 1996. Publication 162 *Diseases and Insects of Turfgrass in Ontario*  
<http://www.gov.on.ca/OMAFRA/english/crops/pub162/p162order.htm>

Government of British Columbia *Integrated Pest Management Manual for Home and Garden Pests in BC*  
<http://wlapwww.gov.bc.ca/epd/ipm/docs/envirowe/default.htm>

University of California – Agriculture and Natural Resources Program *The UC Guide to Healthy Lawns*  
<http://www.ipm.ucdavis.edu/TOOLS/TURF/> and  
<http://www.ipm.ucdavis.edu/index.html>

## 5.1 Common lawn and garden weeds

Weeds may appear in both lawns and gardens. Many weeds do not tolerate mowing and appear only in the bare soil of a garden bed. Garden weeds can be managed by hand weeding and mulching.

The seed bank – the thousands and even millions of seeds in soil – makes the most of every opportunity to start to grow. The plants that we call weeds are aggressive, opportunistic, fast-growing interlopers that favour disturbed earth. If you have bare patches in your lawn and exposed soil in your garden hardy, unwelcome plants with names like redroot pigweed, lamb's quarters, corn spurry, chickweed, creeping Charlie and mallow will appear.

Weeds in your garden can be pulled out by hand. Keep the layer of mulch thick to deny light to seeds in the soil.

Weeds in the lawn may also be pulled by hand or dug out with a tool. Drop some grass seed and top dressing in the hole left behind. A description of the most common lawn weeds and the practices for managing them follows.

**Dandelions** are perennial weeds that reproduce by seed. Their bright yellow flowers make them probably the best recognized of all lawn weeds. When the weed matures, the dandelion flower turns into a puff ball of seed that is easily carried in the wind. Once the seed head is gone the leaves are much less noticeable. Dandelions have a long single taproot that allows them to search for nutrients deep in the soil. This is why dandelions are commonly seen in lawns with thin grass and poor fertility.



**Dandelion**

Dandelions in a lawn will be crowded out by a thick, healthy stand of grass. Slicing off the leaves or repeated mowing, especially before they go to seed, will limit their spread. Digging out the root to ten to fourteen centimetres (4-5 inches) will eventually kill them.

**Broadleaf plantain** is a common perennial lawn weed that reproduces by seed. It has a characteristic rosette pattern of leaves with long flower spikes. Broadleaf plantain is usually found in low quality, compacted lawns



**Broadleaf Plantain**

and may be seen near driveway and walkway edges that get a lot of foot traffic.

Plantain can be removed with a hand weeder. In areas where there are a lot of these weeds, relieve compaction with aeration and then add organic matter and grass seed. If the area is always subject to foot trampling you may also want to consider placing some hard landscape material such as gravel or stone.

**Black medic** is an annual lawn weed that reproduces by seed. It has small compound leaves having 3 oval leaflets, very similar to clover, and a thin taproot. What distinguishes black medic are small, nearly spherical clusters of yellow flowers and small clusters of black coiled seedpods.



**Black Medic**

Black medic can form dense patches as its wiry stems trail along the ground. This weed does not blend as well with the lawn as does its cousin, white clover. It can be an aggressive spreader especially in dry sunny locations. Identifying the weed early will allow it to be weeded out of the lawn before it spreads. Fall overseeding when the weed is less vigorous can also help prevent its reappearance.

**Crabgrass** is an annual weed that sprouts from seed in late May to early June. Two varieties of crabgrass grow in Ontario, large and smooth crabgrass. Crabgrass is probably the most common grass-like weed, with wide blades and a coarse bunch-like

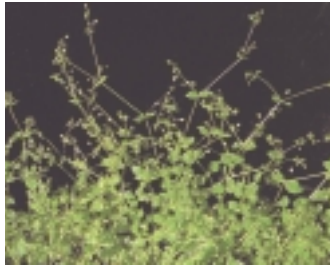


**Crabgrass**

appearance in the lawn. In late summer it produces hundreds of seeds on finger-like seed heads that over-winter in the soil and germinate the following spring. Crabgrass is typically seen in clusters on lawns that are thin and undernourished.

Crabgrass does not tolerate shade. Studies have shown that by increasing grass height, enough shade is created at the soil surface to keep the weed from sprouting. Keeping your grass thick with fall overseeding will also help control crabgrass.

**Chickweed** is a low growing winter annual. A winter annual is a plant that germinates from seed in the fall and then grows fall, winter and early spring. In the early spring it produces seed and then the plant dies in late spring. Chickweed spreads in a lawn with creeping above-ground stems that produce roots where they touch the ground. Its leaves are small and it produces a small white flower with five petals. Chickweed prefers moist shaded areas with thin grass but it can also tolerate sunny areas. Chickweed is a rather inconspicuous weed and in a thick lawn will have limited spread. It is one of those weeds that can blend in well with grass to provide some biodiversity.



**Chickweed**

**Creeping Charlie** is also called ground ivy and is a low-growing, creeping perennial weed. Its distinctive characteristics include square stems that set up roots at every node, oval shaped leaves and a noticeable mint-like odour. It has trumpet-shaped blue-violet flowers that appear on erect branches. Creeping Charlie thrives in moist, shady areas of the lawn and garden, but will also invade sunny areas if the lawn is thin. Prevention is key for the management of this weed. Remove it from garden beds by hoeing or digging it out. If you don't want it in your lawn, make sure it is removed from garden beds.



**Creeping Charlie**

**Mallow** may be either an annual or biennial weed that reproduces by seed. Mallow has kidney to round-shaped leaves that are more than 2.5 cm (1 inch) in diameter and it produces a white or slightly pink flower. Mallow has a long taproot that allows it to withstand drought. Mallow is frequently found in newly seeded lawns or lawns that are thin, stressed or have poor fertility. It can be removed with hand weeding and new growth can be prevented by following good horticultural practices.



**Mallow**

## 5.2 Clover

Sometimes considered a weed (on golf fairways for example), clover is a non-grass species that is definitely not considered a weed in a natural lawn or garden. In fact, clover, especially Dutch white clover when it is mixed in with grasses, is a wonderful plant for a natural lawn.

Clover is a perennial that spreads through the lawn with creeping stems. It tends to stay green all season long with less watering, is soft to walk on, tolerates mowing and can fill in thin areas of a lawn. A member of the legume family, clover enables soil bacteria to take nitrogen from the air and convert it into nitrogen in a form that the whole lawn can use. In a flower or vegetable garden, clover may be grown as a cover crop or living mulch that is particularly well suited to suppress weed growth.



**Clover**

In the lawn, clover first makes its appearance as dark patches or "blooms" but eventually blends in with the grass. Clover seeds can be introduced into a seeding mix for both overseeding and new lawn establishment. The seeds are quite small and you can use between 2 and 8 ounces of clover seed per 1,000 square feet depending upon how much clover you want in the lawn. If you do see clover in your lawn and garden and do not want it, it is best to remove it completely by digging it out because any stems left behind will set up roots and continue to spread.

### 5.3 Managing insects

You may be concerned about insects that feed on your plants or chew on grass roots, but most insects in the garden actually do no harm. Instead, they feed on and destroy the real insect pests. Pesticide-free lawn and garden care begins with an understanding of the important role of beneficial insects. Insect pests in an urban environment are naturally kept in control by predators and parasites. These should be actively encouraged in your garden. Common beneficial bugs around the garden include the praying mantis, the earthworm, which enriches and aerates the soil, lady bugs that prey on aphids, and ground beetles that feed on caterpillars and other soft-bodied larva.

### 5.4 Common urban lawn insects

There are insects that can cause damage to the roots, crowns or blades of the grass depending upon the lifecycle stage of the insect, time of year and quality of the lawn. Usually the damage is seen as a dying area of grass with characteristic brown patches. It is very important to diagnose the problem accurately since dog spots, over fertilization and diseases can all create the tell-tale brown patches. Identifying the insect and the damage it is doing is important before deciding upon a specific course of action. The most common insects of home lawns are:

**Grub** is a term used most often to refer to the larval (juvenile) stage of one of three beetle species: the European chafer, June beetle or Japanese beetle. It is in its grub stage that these insects do the most damage by feeding on grass roots. This can cause the grass to die. Because the feeding insect larvae have destroyed the roots, the grass pulls back easily. The grubs of all these beetles appear as white, C-shaped larva with tan heads and 6 legs.



**A typical grub**

Depending upon the species of beetle, the grubs most actively feed on grass roots in the fall. Some may also feed, to a lesser degree, in the spring. Animals digging in search of grubs to eat can also damage a lawn. The defense against grubs in a natural lawn care program is long rooted, healthy grass and an environment with lots of natural predators. If you can not control grubs with cultural practices alone, nematodes have proven effective when properly applied. Raking the area, topdressing and reseeding can repair grub damage.

**Chinch Bugs** are small insects that grow to about 4mm in length. When they first hatch they are red but darken as they mature. Chinch bugs have piercing mouth parts and feed on the crown and stem of grass, sucking out the sap from the plant. Chinch bugs thrive in dry weather. Damage to lawns is always more severe in hot, dry summers. The injury appears as irregular sunken patches of dead grass and is usually noticed in August. Chinch bugs like to hide in thatch and prefer sunny, dry areas that are poorly watered. A good horticultural program with thatch reduction, aeration, and proper fertilizing will go a long way to preventing problems with chinch bugs. Research has also shown that overseeding with grass that contains endophytes (see Chapter 3: “seeding”) offers some resistance to chinch bug feeding.



**Typical chinch bugs**

**Leatherjackets** are a relatively new insect problem on southern Ontario lawns. The leatherjacket is the larva of the European Crane Fly, a flying insect that looks a lot like a very big mosquito (unlike mosquitoes, crane flies do not sting). Leatherjacket larvae are grey-brown in colour, legless, tubular in shape and are mostly seen under the soil surface. They primarily feed on the roots and crowns of grass in spring (April and May), but will also come to the surface and feed on stems and grass blades. Leatherjackets can seriously damage a lawn when they are present in large and the lawn is already thin or under stress from drought or poor soil. Birds looking for leatherjackets to eat may also damage a lawn. A thick, healthy natural lawn should be able to withstand a moderate population of leatherjackets. If additional control is required, nematodes have been proven effective.



**Leatherjacket larva**  
(shown next to dime to illustrate size)

## 5.5 Common garden insects

In your garden, insects tend to bother plants that are susceptible to that particular insect or are in some other way stressed, damaged, or poorly cared for. Insects can cause a range of effects from making holes in leaves, stunting new growth, causing wilting or other blemishes and possibly even killing the plant. Some of the more common pests in urban gardens are described below.

**Aphids** are commonly found around the home garden on a wide variety of plants and shrubs. They are small, soft-bodied, six legged insects that use piercing mouth-parts to feed on plant juices. Aphids are often found in large numbers, usually on young leaves at the tips of branches. Aphids will not kill a plant, but they can interfere with plant vigour and growth. Aphids can also spread diseases between plants. Fortunately, there are many natural predators of aphids that help control them. These include the lady bug, small wasps and lacewings. You can attract these beneficial insects with a garden rich in pollen and nectar producing plants. Aphids can often be effectively removed with a strong blast of water or with insecticidal soap. Always follow label instructions.

**Scale** is another sap-sucking insect that comes in a wide variety of species and can be found on many different host plants. The insects look like stationary bumps on the stems of plants. The bumps are actually an insect under the protection of a small shell. In large numbers, scale can cause leaves to yellow and twigs to die. A common host plant for scale is the euonymus. Beneficial insects such as ladybugs and parasitic wasps are natural enemies of scale. Scale can be controlled by scraping them off the stem or pruning out heavily infested branches. Dormant oil is also effective at controlling scale if applied before the growing season. Always follow label instructions.

**Slugs and snails** are nuisance pests in the home garden. Both are in the mollusk family and slugs differ from snails in that they lack an external shell. These pests are most active at night and favour cool, damp locations where they feed. They prefer to feed on certain species of vegetable plants and succulent foliage. They cause damage by chewing holes in the leaves. These pests are best managed by a multi-level approach that includes avoiding certain plants, setting slug and snail traps, attracting predatory beetles into your garden and making the area less inviting. For example, using drip irrigation techniques, avoiding night watering and pruning to increase air circulation have been found to reduce humidity levels and discourage their presence. Products containing ferric phosphate, a low-toxicity product that does not harm pets or wildlife, may be used, according to label instructions, to control slugs and snails in your natural garden.

## 5.6 Common tree insects

Some of the more common insect pests of trees are described below. It's wise to consult a certified arborist if you suspect problems with your tree.

**Gypsy moth larvae**, which are dark caterpillars, can defoliate trees and where large populations exist, successive years of extreme defoliation can result in the tree's death. There are a number of natural parasites and predators of the moth. Birds, beetles and ants find gypsy moth caterpillars delicious. Pheromone traps will lure male gypsy moths to an untimely end and biological controls such as *Bacillus thuringiensis* (Bt.) will kill gypsy moth larvae. Always follow label instructions.

**Leaf Miners** are the larva of several species of insects that bore through leaves and feed on the chlorophyll between the upper and lower leaf surfaces. The result is a characteristic clear tunnel or "mine" in the leaf where the green chlorophyll has been eaten away. Leaf miners can attack a wide variety of trees. In southern Ontario, birch trees are susceptible to leaf miner infestations. Leaf miners have many natural predators including ants, flies, lacewings and birds. Small numbers of the pest can also be handled by removing infested leaves, using sticky traps for the adults or applying horticultural oils. Always follow label instructions when using these products.

**Scale**, as described earlier in the section on plants is also a relatively common pest on trees including magnolia, yew, oak and pine. Stressed plants that are over fertilized or in the wrong location are most susceptible. Horticultural controls include physical removal of the scale, deep watering, mulching with an organic mulch and encouraging natural predators like ladybird beetles and parasitic wasps. Dormant oil sprays may also be used. Always follow label instructions when using these products.

**Aphids** are also a nuisance insect on trees. They cause damage by sucking fluid from the leaves and stems of maple, oak, pine and walnut trees (among others). Damage can be seen on leaves and new growth, although it is rarely severe on a mature tree. Aphids can be removed with a strong blast of water from a hose. Insecticidal soap, products containing pyrethrins and diatomaceous earth may all be effective against aphids, but should be used only if the water blasts do not work. Always follow label instructions when using these products. Encouraging natural predators is also helpful.

**Tent Caterpillars** are commonly found on fruit and shade trees throughout North America. The caterpillar larvae feed on the leaves of trees and can do a fair amount of damage. The caterpillars can slow growth and can cause death after successive years of serious defoliation. Large populations of

caterpillars can also be a nuisance in and around the home. Characteristic signs of tent caterpillars are their silken tent on branches where they congregate in early spring, a cocoon spun in June and a cylindrical egg mass laid in late summer. Physical removal of the egg masses or nests is a control option for the home gardener. Tent caterpillars also have many natural predators including birds and wasps.

**Galls** are soft non-uniform growths appearing on various locations on a tree. The gall itself is actually swollen plant tissue that forms in response to a variety of insects, fungi and bacteria. The shape, location and characteristics of the gall can often provide a clue as to its specific cause. Most galls do not cause serious harm and do not require any treatment. Proper watering and use of organic mulches can help prevent their appearance. If galls are present, prune infected branches to improve the tree's appearance and to limit their spread.



## 5.7 Lawn diseases

Diseases (fungal infections) are rare on home lawns. When they do appear it is usually a result of weather conditions such as high humidity, hot temperatures or lots of rain. Lawns that have not been receiving proper care and are compacted, over fertilized or over watered may also be susceptible to some of these diseases. Lawn diseases are best prevented by adding soil amendments, promoting air circulation and by keeping lawn mower blades sharpened. Diseases will often self correct with changes in the weather but if the problem persists, the affected areas can be repaired by raking out the damaged grass, aerating, topdressing and overseeding.

Diseases are difficult to diagnose: if you suspect you have one on your lawn, check with a professional. Some of the more common lawn diseases are described below.

**Fairy Ring** is a dark circle of grass with mushrooms growing on the outer ring – is caused by a kind of fungus called basidiomycetes. The term "fairy ring" comes from a superstition that the mushrooms growing in a circle represent the path of dancing fairies. When you see a mushroom growing in a lawn, you are only seeing a small part of the fungus that also grows underground as a thread-like mass called mycelium. The grass inside the fairy ring is often a darker green than the rest of the lawn due to extra nitrogen that is available where the fungal mycelium has died.

**Mushrooms** can be temporarily removed by regular mowing or raking. Since fairy rings are most visible in low fertility conditions, you can mask the fairy rings by improving your soil's nutrient level with natural fertilizers.

**Necrotic ring spot** creates rings of brown grass in your lawn. The grass dies and can be easily pulled out as the fungus destroys the roots and crowns of the plant. In Ontario, Kentucky bluegrass lawns can be prone to necrotic ring spot. The disease is more prevalent where the grass suffers from a weakened root structure. The disease will spread more aggressively in cool wet weather. If your lawn has a blend of grasses including Kentucky bluegrass, fine fescue and rye grass, it will be more resistant to this disease.

**Powdery mildew** appears as a dusty white coating on grass blades. Infected blades are more susceptible to other diseases and may eventually die. Powdery mildew is primarily a problem on Kentucky bluegrass. The fungus grows best in areas of high humidity, low light and poor air circulation and is more common in spring and fall. Over fertilizing can make the condition worse. Proper fertilizing and the other practices described in Chapter 3 plus a blend of grasses in your lawn will reduce the chance of powdery mildew becoming a problem.

**Snow mould** is a disease visible in the spring after the snow melts. It appears as irregular patches of grass that have a bleached or reddish appearance. The fungus germinates under the cover of snow, infecting the grass. Snow mould can be prevented by minimizing lawn thatch and by a late fall cut after grass growth stops. If snow mould is present, rake the area to encourage it to dry, overseed and lightly fertilize the damaged area.

**Leaf spot** occurs in warm weather and is easily recognized. Spots on the leaves develop purplish-red to purplish-brown borders and brown centers. Leaf Spot can cause your grass to die in irregular patches measuring in size from several centimetres to many square metres. Excess thatch, heavy nitrogen fertilizing, too much shade and mowing too short are conditions and practices that promote leaf spot. A natural lawn care regimen should prevent leaf spot from ever being a problem on your lawn.

**Rust** appears as orange powder on the leaf blades late in the fall and the grass may take on a discoloured appearance. Cool nights with lots of dew will help the spread of rust disease. Rust is a condition of slow grass growth brought about by summer dormancy or poor soil quality. Improving soil nutritional content, or just waiting for the weather to change, will manage rust on your lawn.

## 5.8 Garden and tree diseases

There are a wide variety of plants and tree diseases. Their occurrence can vary from year to year or return in cyclical patterns. The more common diseases, described below, will very often damage the appearance of the plant but not cause serious harm. It is wise to address the problem quickly, however, as these diseases can reduce vigour and make the plant or tree more susceptible to other problems.

**Powdery Mildew** is a common disease in the home garden and affects a wide range of plant and tree species. The disease is caused by a fungus that tends to thrive when the days are hot and humid and the nights are cool. It appears as a white coating on the leaves of the plant and, while it may be unattractive, rarely harms the plant. Pruning to improve air circulation and ensuring the plant is properly watered are important preventative cultural practices.

**Black Spot** is a common problem in the home garden and is frequently seen on roses. Black spot will arise under damp conditions and can be managed with horticultural practices. The plants should be properly pruned and well spaced to encourage good air flow. Water the plants by soaking the soil and avoid getting water on the leaves. Any badly infected plant parts should be pruned and discarded. Adding compost to the soil has also been known to help suppress fungal disease. Along with these practices, products containing sulphur as their active ingredient may be used to prevent black spot on roses. Always follow label instructions.

**Diplodia Tip Blight** can be a problem for pine trees introduced into areas where they do not normally grow. In southern Ontario, for example, Austrian Pines are susceptible to tip blight. The disease affects new growth. The first sign is browning at the tip of the pine's branches. The disease can cause the death of the current year's growth and can ultimately kill the tree. The fungus usually takes hold in trees that are suffering from stress due to drought, root restriction or other planting site problems. Cultural practices such as proper watering and removing restrictions on the tree's roots should help increase the tree's resistance to the disease. If the disease is established, pruning out infected areas will help reduce spread.

