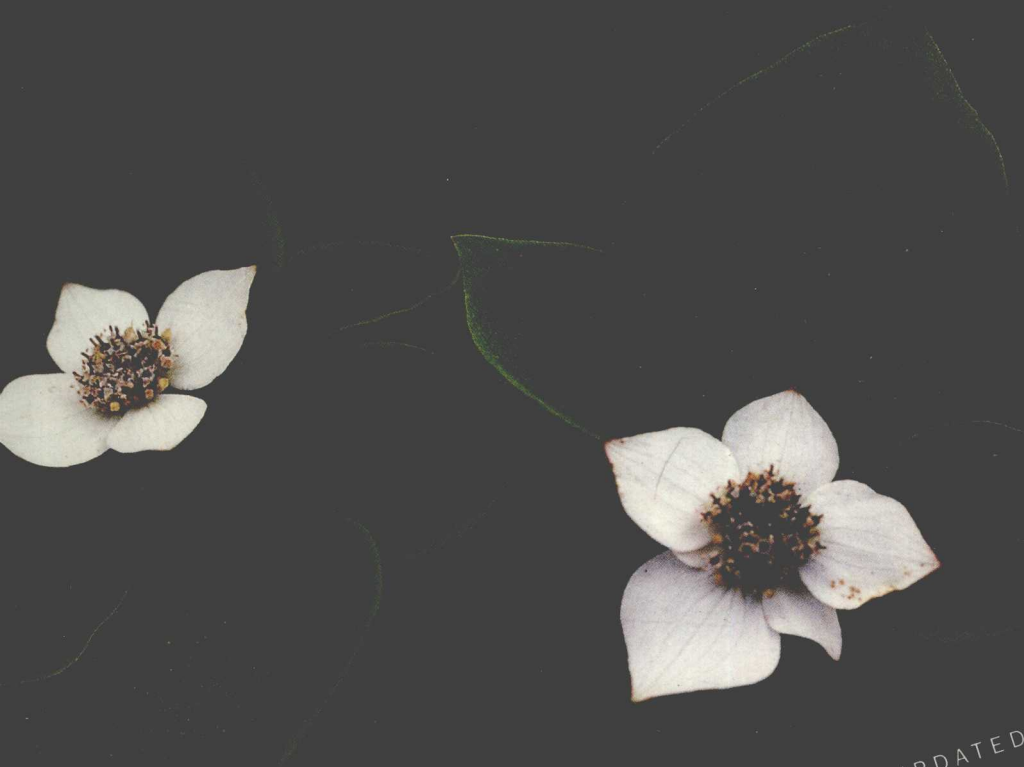


Taylor's Guides The Name the Experts Trust

Ground Covers

MORE THAN 400 FLOWERING AND FOLIAGE
GROUND COVERS FOR EVERY GARDEN SITUATION

NAN SINTON AND DAVID C. MICHENER



COMPLETELY REVISED AND UPDATED



Taylor's Guide to

Ground Covers

MORE THAN 400 FLOWERING
AND FOLIAGE GROUND COVERS
FOR EVERY GARDEN SITUATION



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Contents

INTRODUCTION

A Fresh Look at Ground Covers	1
Invasive Exotics	16
Design Issues	18

GALLERY OF PLANTS	27
--------------------------	----

ENCYCLOPEDIA OF PLANTS	151
-------------------------------	-----

HARDINESS ZONE MAP	356
---------------------------	-----

PHOTO CREDITS	358
----------------------	-----

INDEX	360
--------------	-----



Introduction



A FRESH LOOK AT GROUND COVERS

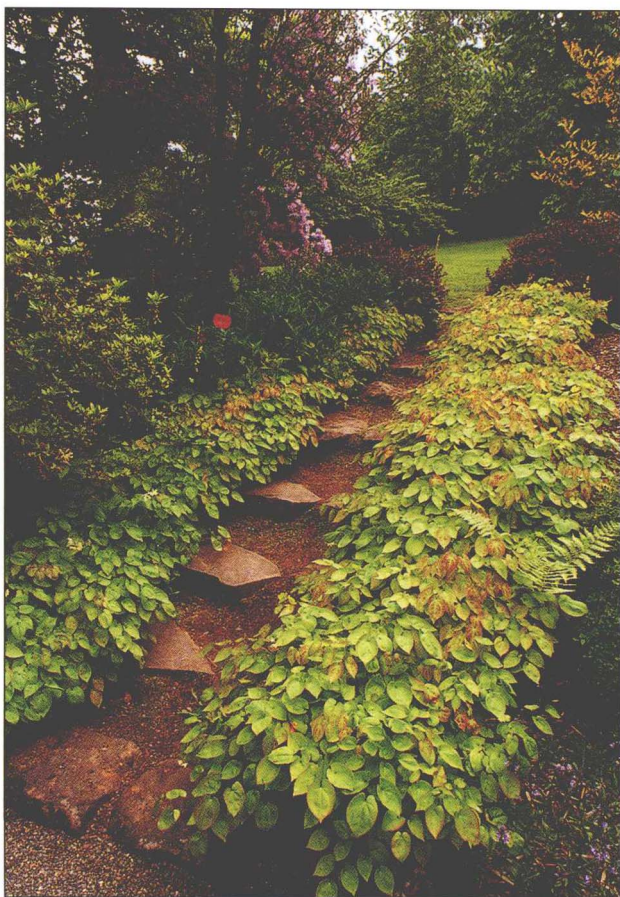
Ground Covers at Work

Carpets, rugs, mats, or floors—no matter how you think of ground covers, gardeners agree that without them, no garden picture is complete. Ground covers are planted to make thick mats and broad, dramatic sweeps. They cover the ground under trees, around shrub masses, along paths and driveways, and under or around accent features such as benches, birdbaths, and statuary. Whether they are perennials, ground-hugging vines, or low shrubs, ground covers naturally form thick stands of foliage that, once established, require little maintenance. Their ability to spread by runners, offshoots, and even low-spreading branches that root at the tips means that they will grow together to cover an area even when the initial planting is comparatively sparse. Not only are these plants beautiful, but they also can transform many problem spots into featured areas. Their tight growth makes them ideal for erosion-prone slopes and soils. The densely interwoven roots, stems, and foliage bind the soil, slow down water, and halt soil creep. On level surfaces, all these features help make the ground cover weed-free. Although you can look at ground covers from many vantage points, it is helpful to sort them into either foliage ground covers or flowering ground covers that have attractive foliage both in and out of bloom.

Leaves of foliage ground covers are predominantly green, but some are blue-green, purple-bronze, yellow, or strongly marked with

white. In all cases, foliage color and texture establish the “look” of the ground cover. Having masses of green foliage is important. It is restful to the eye and helps set off nearby flowering plants and views. Many foliage ground covers also have attractive flowers, fruits, or autumn colors. Think of periwinkle (*Vinca*) with blue or white flowers, bearberry (*Arctostaphylos uva-ursi*) with pink flowers and red berries, ground-covering junipers (*Juniperus*) with gray-blue berries, lily turf (*Liriope*) with black berries, and Virginia creeper (*Parthenocissus quinquefolia*) with bright red, orange, or even purple fall foliage.

Flowering ground covers are usually chosen for a period of dramatic bloom. Anyone who has seen great masses of daylilies (*Hemerocallis*) blooming on a bank, cascading billows of moss pinks (*Phlox subulata*)



Epimedium × versicolor ‘Sulphureum’ massed as a ground cover does multiple tasks. The height of the foliage marks the stairs without hiding the stones, the bright foliage color highlights the Berberis thunbergii at the top, and the tidy, heart-shaped foliage hides the peony bases. All this from one ground cover massed abundantly.

transforming a rocky slope into a bower, or a woodland under-planted with sweeps of astilbes (*Astilbe*), barrenworts (*Epimedium*), or foamflowerers (*Tiarella*) understands that ground covers with an intense peak of bloom can be breathtaking. But flowering ground covers, to be satisfactory, must have clean and healthy foliage for the rest of the garden's season and not die down like spring-flowering bulbs or native spring flowers and leave vast bare spots. Fortunately, many ground covers and bulbs are compatible, leading to two seasons of color for the garden area.

Preparing to Plant

So you've decided that you need ground covers in your garden. Most likely, something else is already growing where your new plants will go, even if it's turf. Your first task is to mark all the edges of the new bed—a hose or stakes and twine are useful for this. When you've created a pleasing shape, stand back and look at it from all perspectives, including, if possible, an upstairs window. If the bed is where you will see it from the street or along the driveway, get in your car and check to make sure it looks right from inside the vehicle. Once you are satisfied with the shape, it's time to clear the entire area that is going to be planted. You will need to be thoroughly rid of the plants you are removing, including their roots. This is especially important with turf, as fragments left behind will make your ground cover look weedy. Dig the bed at least 12 inches deep, more for shrubs. At this point, you'll begin to realize what kind of soil you have and how to improve it so that your plants will thrive.

GOOD SOIL, THRIVING PLANTS

Amending the soil is an important step in helping your ground cover get established and spread. In almost all cases, adding organic matter to the soil helps. Well-rotted manure, compost, rotted wood chips, bark mulch, and shredded leaves break down to microscopic particles that help retain both moisture and the dissolved minerals and nutrients that are in the soil. These same particles also help aerate the soil. An unseen but vital benefit of decaying organic matter is the increase of bacteria, fungi, tiny insects, and earthworms in the soil. The relationships between them and the plants result in a healthy, holistic system that cannot be developed in any other way.

If you have clayey soil, incorporating sand or fine gravel such as poultry grit (available in bulk from feed stores) or builder's sharp sand (not beach sand), as well as gypsum (look for the last two in hardware and garden stores), is as important as adding organic matter to the soil.

Clay has an amazing ability to stick to itself, to prevent air from entering, and to shrink when it dries. All these activities are traumatic to tender, growing roots. Mixing in sand or fine gravel, gypsum, and organic matter reduces this self-sticking tendency. The resulting soil is much better aerated, holds much more water, and is less likely to shrink when it dries.

For soils that are too gravelly and sandy, try adding well-rotted animal manure, compost, rotted wood chips, bark mulch, or shredded leaves, as the rough organic matter improves the soil's ability to hold water. Fresh wood chips are often easily obtained from tree-pruning crews, but these chips need to decompose for at least several months before being used. If you do not have the space for a pile of fresh wood chips to age on your property, rotted wood chips are often available from civic recycling centers or garden contractors. Well-rotted manure is available in bags from garden centers, and in several regions of the country, stables and farms gladly give it away for free.

Good soil is the Holy Grail of gardening. What is meant by "good soil" varies regionally depending on climate, but gardeners agree that most plants thrive in soil that holds moisture, drains freely, and has many tiny air spaces.

Buying the Plants

For any gardener, the first step in planting a ground cover is to figure out which plants you want to buy. If possible, go to a public garden or nursery and decide what you like best. The next step is to measure the area you want to plant and figure out how many plants you need to fill it. This can get tricky. Are you buying many small plants or fewer larger ones? Deciding which plants to use depends not only on price but also on what is in stock at the nurseries. Let's look at each step in detail.

WHICH PLANTS?

As you visit nurseries or order plants by mail or on the Internet, you will encounter many names not listed in the main entries in the Encyclopedia of Plants. Check the index to see if a plant you are considering is listed here under another name. Many plants are sold under more than one name, and we have attempted to include as many names as possible. For example, if you look at the main Encyclopedia entry for *Sedum spurium* 'Schorbuser Blut', you will see that it is also listed as 'Dragon's Blood'.

What if a plant species or cultivar you are considering is not included in the Encyclopedia of Plants? The best way to judge whether it will thrive in your garden is to look at the entries here for the entire

genus. As long as the genus grows in your climate zone, then some of the species are likely to do well there. But be aware that this is how exotic invasive pests have infiltrated the country—some do too well here because they have left their disease and insect problems “at home.” (Invasive species are considered on page 16.)

If the flower color of a ground cover is important, make your choices from the photographs and descriptions in the Gallery of Plants. If a specific shade is critical to you, it's often best to make the final selection at a nursery, where you can see the ground cover in late bud to full bloom. Such plants are almost always in the larger (more expensive) sizes.

HOW MANY PLANTS?

Once you have made your selections, you will need to figure out how many plants to buy. First, measure the area you want to plant. Area is figured in square feet in the United States and in square meters in Canada. For a rectangular area, multiply length by width. For an irregularly shaped area, measure it as several adjacent rectangles. Figure the area of each rectangle, then add these figures together to come up with the total square feet or meters. For a circular area, multiply the radius (the distance from the center to the edge) squared times 3.14.

Once you know the area to be planted, you can move on to plant size. Here your budget and what is available come into play. It may be confusing to find that a particular ground cover is available in many different sizes. In general, the less soil on the plants you purchase and the smaller the size, the more frequently you will need to water and weed until the plants are established. Smaller plants are usually much cheaper, but once these plants start growing, they will colonize with amazing speed and effectiveness. At the opposite extreme, larger plants may withstand more neglect in the beginning, but it will take time for them to fuse into a mass.

The number of plants needed to cover 100 square feet at specific planting distances is calculated in the table on page 6. Gardeners are often surprised by how many small plants set close together it takes to cover an area. This table gives you a ballpark estimate of the numbers needed. Don't worry if you end up buying “extra” plants in the smaller sizes. You will be able to use them to thicken the planting. In all cases, your initial planting will look better if you purchase slightly more plants than estimated. Remember that these numbers assume that you are planting in square grids—as if you were placing a plant in the center of every square floor tile. If you like a geometric look, plant by the grid. If you like a more flowing, naturalistic look from the very beginning, you must have uni-

form coverage but not perfectly straight lines. Think of ripples on a pond or fan-shaped cobblestone patterns. Keep your spacing fairly even as you plant by using some sort of measuring stick—your hand, a trowel, a stick, or even a yardstick with the planting distance marked. Use this “stick” each time you position a new plant. Start planting at the back of the bed and work your ripples or fan shapes forward. Use extra plants to fill in holes that emerge from slight misalignments, to fill in spaces around smaller plants, or to thicken the planting at the very front.

Approximate Numbers of Plants for Ground Covers

DISTANCE BETWEEN PLANTS	PLANTS PER 100 SQUARE FEET
4 inches	900
6 inches	400
8 inches	225
10 inches	145
12 inches	100
15 inches	65
18 inches	45
24 inches	25
36 inches	9 to 11

Getting Plants Growing

It is critical to add a light layer of mulch, about 1 inch deep, as soon as the plants are in the ground. Mulches reduce the soil water that is lost to evaporation, thus retaining moisture for the tender roots that the new plants are sending out. Except in dry climates, organic mulches are much more helpful than inorganic ones (such as ornamental stone or gravel) because an organic mulch will break down over time and further build the soil. Mulches also keep the soil cool and promote root growth by shading the soil from direct sunlight. In addition, mulches help suppress the germination of weed seeds. Another benefit of mulches on slopes—and few gardens are truly flat—is that they trap rain and irrigation water as it is applied and thus help the soil absorb the water. Without a mulch, the water will make small erosion channels, which will grow quickly, leading to both the water running off and the soil washing out of the bed.

Once the ground cover is planted, it should need little attention during the first year, other than periodic weeding and adequate watering. If the ground cover is new to you, or the garden site is new, pay particular attention to any early signs of plant stress, such as yellowing or curling of

leaves. This stress is usually caused by either too little or too much water. Check to see whether the soil is moist by pulling back the mulch in a small area and feeling the soil. Remember to take a trowel and sample the soil several inches deep. The soil should be moist but not wet.

If the soil is dry, there is too little water. Remedy the situation immediately with regular deep watering with a sprinkler. Watering by hand is inadequate, as the water is applied too quickly and for too short a time to penetrate deeply. If the soil under the mulch is soggy, you have poor drainage. The plants show the same symptoms as when water stressed because the roots are drowning—water has filled the soil's air spaces and the roots cannot survive. In this case, stop watering immediately. If the soil does not dry out within 2 or 3 days, lift the plants and hold them in pots or trays, or even move them temporarily to a drier part of the garden. Replant them once you have fixed the drainage problem. To do this, you might try making raised beds, incorporating sand or fine gravel into the soil, or installing drainage tile. If the soggy conditions cannot be fixed, you will need to find a ground cover that tolerates wet conditions. Some moisture-loving plants are cinnamon fern (*Osmunda cinnamomea*), ostrich fern (*Matteuccia struthiopteris*), mazus (*Mazus reptans*), Japanese sweet flag (*Acorus gramineus*), and yellow root (*Xanthorhiza*).

If your new ground cover is planted at the beginning of the growing season, you can speed up its establishment by fertilizing it on a regular basis. Use an organic fertilizer that has been diluted to one-quarter to one-half of the recommended strength (these are tender young plants). Fish emulsion works well. Lightly spray the foliage every 4 weeks, trying to do this when the weather is cloudy or early or late in the day. Stop all fertilizing at least 8 weeks before the expected first frost date for your area so that your plants will stop active growth before winter.

After a growing season has passed, your new ground cover should be well established and need only occasional weeding and supplemental watering. It is good to add a light dressing of new organic mulch (up to an inch if there are bare spots between plants, otherwise less) during the ground cover's dormant season at least every several years. Not only will this renew the mulch, but the organic material will also slowly break down to continue enriching and improving the soil. This routine top-dressing will provide the needed nutrients and require you to fertilize less frequently or not at all.

Some ground covers need additional care to perform best. Bedstraw (*Galium*), lily turf (*Liriope*), and yarrow (*Achillea*) will perform better in the long run if they are severely pruned back once a year. This can be

done quite effectively by setting a power lawn mower on its highest setting and mowing the ground cover just before it breaks dormancy at the beginning of the growing season. This is also the time to apply a top dressing of mulch. Other ground covers, such as astilbes (*Astilbe*), coralbells (*Heuchera*), and lady's mantle (*Alchemilla*), will perform best if the old clumps are dug up and divided every several years. In these cases, the vigorous outer parts are divided or cut off of the mass and replanted, while the old decaying centers are thrown away or composted. This renewal process can go on indefinitely and will provide additional plants for you to place in new or renovated garden areas, as well as to share with neighbors and friends.

Making More Plants

Gardeners propagate ground covers for many reasons—personal satisfaction is one and “bragging rights” another. This is also done to increase existing plants, as some may be difficult to find, others have sentimental value, and many gardeners enjoy sharing their favorite plants with friends. Finally, it saves money but not always time. Whatever your motives, long-term success depends on using your healthy new plants in appropriate, well-prepared sites. Before you begin propagating your ground covers, estimate how many new plants you will need (see the table on page 6) and decide if you really want to produce and care for the necessary number of plantlets. It is one thing to enjoy producing a few dozen plants for a plant sale, but it is quite another to create hundreds for a new project.

How do you produce healthy new plants? Each propagation method has its advantages depending on ease of production, number of “mother plants” in your garden, season of the year, and your time commitments and interests.

Plants are propagated vegetatively or by seeds. Common methods of vegetative propagation are cuttings, divisions (including offsets), layers, and suckers. These methods have several advantages over seeds—uniformity of the new plants, the speed with which these plants develop, and the fact that plants can be propagated throughout much of the growing season when seed germination might be difficult. In addition, these vegetative propagation methods need not hurt the mother plants. The original mass of ground cover is usually in fine form after the propagation material has been taken.

Seed propagation is used in special cases where seedlings come up in an existing ground cover mass with no effort by the gardener. Seedlings

are transplanted to their new site before the mother plants overcome them. Hellebores (*Helleborus*), violets (*Viola*), and wild gingers (*Asarum*) are all well known for their seedling production in sites where they are happy.

C U T T I N G S

Of all the types of cuttings, stem cuttings are the top choice of most gardeners. Stem cuttings are just that—sections of young, pliable stems with several leaves attached. The trick is to fool the stem section into sending out new roots—rather than new leaves—at selected nodes (there is always a node where a leaf attaches to the stem). To do this, fill pots or flats with well-drained garden soil or a commercial soil mix and moisten the soil. Then take the cuttings with two to several nodes—use a sharp knife or clippers to make clean cuts—and plunge the cuttings into a bucket of water so that they do not dry out while you are working. Poke a hole in the planting medium (your finger or a pencil will do), and take the leaf (or leaves) off the bottom node(s) of the cutting. Dip this leafless node into a rooting compound (available at garden centers), put it in the soil hole, and press the soil firmly around the buried node. The rest of the leafy stem remains above ground. When the pot or tray is full, water well and place it out of full sun or strong wind. You may wish to make a temporary enclosure for the new cuttings with clear or fogged plastic and short stakes to keep the humidity high and drying winds away, but be careful not to overheat the cuttings with the high temperatures that can build up in such enclosures. Ground covers that are easy to root in this way include ivy (*Hedera*), pachysandra (*Pachysandra terminalis*), and periwinkle (*Vinca*).

D I V I S I O N S

Divisions and offsets are much easier to produce than cuttings and are typically used for ground covers that spread from well-defined crowns. These need to be dug just as the new leaves are beginning to show in the spring, and the vigorous new growth is cut (“divided”) from the old, dying centers. These small but vigorous sections, which include roots, stems, and growing points, are replanted. There are usually many more sections to plant than there were plants in the beginning. Try this with barrenworts (*Epimedium*), coralbells (*Heuchera*), hostas (*Hosta*), lady’s mantle (*Alchemilla*), and navelworts (*Omphalodes*).

Ground covers that spread by running stems and roots to make thick masses are easy to propagate by division in a much more casual manner.

Dig square, shovel-width plugs several inches deep to include numerous roots and stems. Plant these square plugs in the newly prepared area — the plugs have enough substance to reestablish themselves as if little has happened. Fill the holes in the original ground-cover area with compost or other garden soil, then cover them with mulch. The existing ground cover will recover very quickly. This type of division works well with ivy (*Hedera*), pachysandra (*Pachysandra terminalis*), lily-of-the-valley (*Convallaria*), lily turf (*Liriope*), periwinkle (*Vinca*), and ribbon grass (*Phalaris*).

Offsets are the easiest divisions to use. Some ground covers produce new plantlets with great regularity at the end of runners or root segments. Late in the season or early the following year, the newly developed plants can be severed from the mother plant and taken with a small amount of attached soil to a new site. Examples include barren straw-



A generous, weed-proof planting of Liriope spicata holds a difficult bank beneath a grove of red-leaved Japanese maples adjacent to a turf path. The composition works by playing with foliage textures and colors. The Liriope bridges the dramatic leaves of the maple to the soft green of the turf path. The size of the Liriope mass is critical to the success of the scene.

berries (*Waldsteinia*), ajugas (*Ajuga*), mazus (*Mazus*), ostrich fern (*Matteuccia struthiopteris*), wild strawberry (*Fragaria virginiana*), and woodland phloxes (*Phlox divaricata*, *P. stolonifera*).

Layers and suckers are sometimes used to propagate woody ground covers. Layers are formed when a stem that is still attached to the mother plant is shallowly buried and develops its own roots. Later, it can be cut from the mother plant. This is a slow process, but nicking the stem and using rooting compounds (as with cuttings) can speed it up. As you begin the process, it helps to bring in a shovelful of good soil and use it around the buried stem so that the roots can grow without immediate competition. After several months, check carefully to see if roots have formed. Once roots are well established, cut the layer from the mother plant and move it to a new site. Be certain to cut back some of the stem and leaves if there are too many for the new roots to support. Layers need very careful attention during establishment, as it is easy to disturb them before they are settled into their new home, and they dry out quickly. Examples of woody ground covers that may be layered include bearberry (*Arctostaphylos uva-ursi*), lowbush blueberry (*Vaccinium angustifolium*), stephanandras (*Stephanandra*), and some prostrate junipers (*Juniperus*).

Suckers are vigorous shoots of woody plants that can be split from the mother plant while retaining part of the root system. To take suckers, insert a sharp shovel close to the mother plant so that there is as large a root section as possible remaining with the sucker. Cut around the sucker with the shovel and tease up the soil block and sucker. If the sucker was vigorous and the roots are few, cut the top back to balance the roots. Plant immediately in the new site. Often the sucker will grow as if nothing happened. Examples of plants that can be propagated this way include blackberries (*Rubus*), coralberry (*Symphoricarpos orbiculatus*), sumacs (*Rhus*), and wild roses (*Rosa*).

Using Ground Covers to Solve Problems

Cars, utilities, dense shade, and foot traffic create difficult sites around homes. All of these areas are exactly where most homeowners feel the greatest need for carpets of ground covers. It helps to understand why these sites are difficult when you are selecting ground covers.

Of all the problem categories, "near cars" is the worst. No matter how carefully marked, cars somehow cross over the edge of a driveway into the planted area. This is especially damaging when the ground is damp, as the air is driven out of the soil, which becomes so tightly compacted that it cannot support plant life. Only redigging the soil will break

up its crushed structure and allow proper aeration and drainage for subsequent root growth. A less obvious influence of cars is their toxic compounds. Motor oil and various mechanical fluids drip onto the surface over time and are washed over to the bed. In low but chronic doses, they stunt the plants' growth. In wintry zones, even if you do not salt your driveway, cars carry salt in the frozen masses that cling to the wheel wells and underbody. To add insult to injury, snowplows often run into ground covers and damage them by breaking branches and even gouging up the frozen earth and plants. Take special care to select very rugged ground covers in these sites and to prepare the soil particularly well.

Ground covers native to seaside and brackish environments are often naturally tolerant of a certain amount of road salt. Most of these plants require full to near-full sun and good drainage. Plants tolerant of salty sites in sun include the old-fashioned orange daylily (*Hemerocallis fulva*—single and double forms), periwinkle (*Vinca*), some campanulas (*Campanula takesimana*), as well as bearberry (*Arctostaphylos uva-ursi*) and junipers (*Juniperus*), provided splashed salts are washed off promptly. In severe sites, wild and ornamental forms of *Rosa rugosa* can be massed. As a ground cover, *R. rugosa* must be shorn within several inches of the ground late each winter before the buds develop. The resulting roses are spectacular.

Gloomy shade is found in gardens under dense trees and under decks. These two types of deeply shaded sites are slightly different. Under surface roots and dense shade of specimen trees, ground covers face three chronic challenges: gloomy shade, dry soil (the trees absorb the moisture first), and poor soil (again because the trees obtain the nutrients first). The trees most likely to create these situations include evergreen conifers such as hemlocks, some pines, redwoods, and spruces, as well as broad-leaved evergreen trees such as eucalyptuses, live oaks, and magnolias. The deciduous trees that typically create these sites are beeches and many maples, especially red, silver, and Norway maples. For these trees, especially if the branching is low and the trees are large, the optimal solution may be a weed-free treatment such as leaf mulch, wood chips, a decorative specialty mulch such as cocoa bark, or gravel. It may be possible to plant some early-spring bulbs at the edges of such sites.

The area under a deck, especially when seen from a window under the deck, is especially difficult, as plants always grow toward the light. Place them too far back, and the result will be weak, spindly stems that lean toward the light. Locate them too far forward, and they will not creep back into the deeper shade. One solution is to have a nonliving