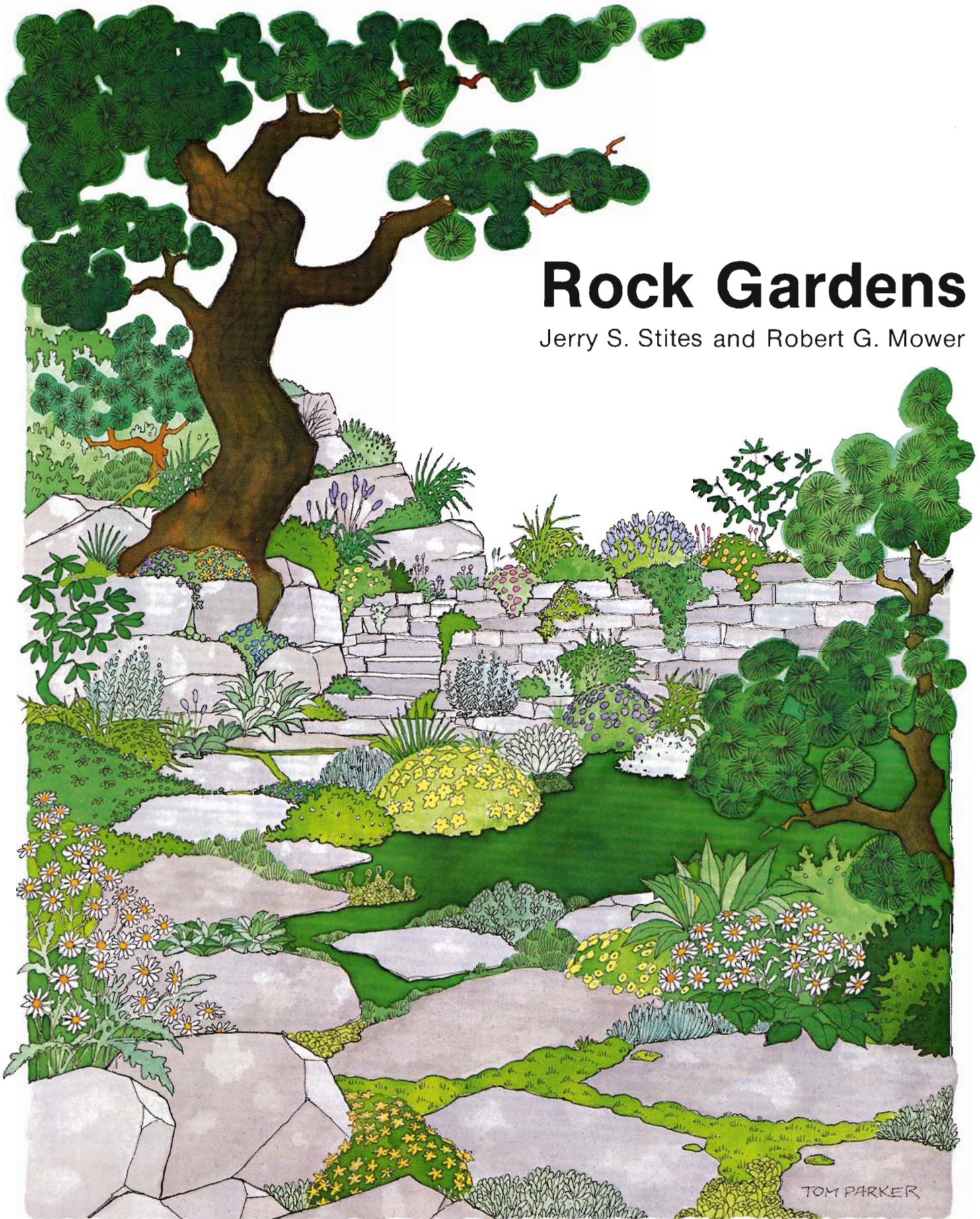


Rock Gardens

Jerry S. Stites and Robert G. Mower



Authors

Jerry S. Stites is a former extension aide and Robert G. Mower, a professor in the Department of Floriculture and Ornamental Horticulture, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, NY 14853.

Acknowledgements:

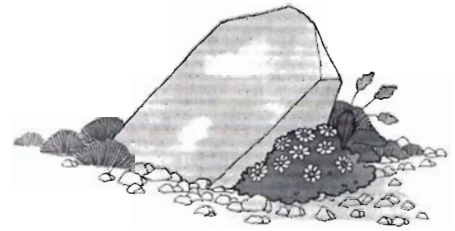
Illustrations and cover art are by Tom Parker.

Slides of the following rock garden plants are by Dr. William J. Dress of the Liberty Hyde Bailey Hortorium: *Androsace lanuginosa*, *Dryas octopetala*, *Lithodora diffusum prostratum*, *Lithodora diffusum erectum*, *Saxifraga canaliculata*, *Saxifraga longifolia*, and *Sempervivum arachnoideum*.

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Rock Gardens



What is a Rock Garden?

Even though rock gardens have been in existence for many years, the concept of rock gardening is confusing to many people. In a pure sense, a rock garden could be any collection or display of rocks, excluding plants altogether. The Japanese practice this type of rock gardening by artistically incorporating only rocks and sand. However, the English style of rock gardening is most commonly associated with the term. Begun in England in the late 1800s, this style of gardening focused on creating an ideal growing site for alpine plants. Aesthetic quality increased as alpine gardening evolved, and rock gardens became more naturalistic in appearance. Garden designs attempted to capture the character and feeling of a mountain scene. Gradually, many excellent plants besides true alpiners were introduced into the garden, and the concept of rock gardening as we know it today was born. In short, a rock garden is an integrated combination of rocks and plants selected to enhance both the cultural and aesthetic quality of the garden.

What is A Rock Garden Plant?

The term 'rock garden plant' is used to classify a broad group of

horticultural plants that can be associated with rocks in an aesthetic and culturally correct manner. To satisfy the aesthetic requirement, a plant must be relatively low growing and have a growth habit that complements the natural effect of the rocks. To be culturally correct in a rock garden, a plant must be able to thrive in the unique microenvironments created by the rocks. Cultural factors include sharp drainage, a cool root run, and protection of the foliage from splashing mud. Alpine and saxatile plants make up the majority of the group of rock garden plants. Although not normally considered to be rock garden plants, a few lowland wildflowers meet the aesthetic and cultural requirements and can also be classified in this category.

Types of Rock Gardens

Rock gardens are often classified into two main categories on the basis of the arrangement of the rocks: formal (architectural) and informal (naturalistic).

Dry walls and paving stones inhabited by various plants are examples of formal rock gardens. These gardens serve a utilitarian purpose, yet at the same time they have an aesthetic function. Where a path or retaining wall is needed, the formal rock garden provides an excellent solution to the problem. A formal rock garden should always be constructed in response to such a need; the

awkwardness of a rock wall or path built solely to accommodate plants cannot be overemphasized. Formal rock gardens can be used effectively around buildings and as a transition between the house and the naturalistic rock garden.

The informal or naturalistic rock garden is the most common, yet the most difficult type of rock garden to design and construct. Its basic purpose is to recreate a natural setting where rock garden plants will look and grow their best. Many people think that a natural rock garden can be constructed in a haphazard manner without regard to basic design principles. This misconception has led to the creation of more rock piles than rock gardens. Studying rock formations in nature is a prerequisite to understanding natural rock garden design and construction.

Both formal and informal rock gardens can be further subdivided according to the individual gardener's interest. A *specimen* garden is primarily concerned with collecting and growing as many different types of plants as possible. A *design* garden uses masses of plants in an artistic manner to produce an overall effect. Because the design gardener's and the specimen gardener's basic interests in plants are different, it is difficult to combine these two techniques in one garden. Thus it is important to determine your own interest before designing a rock garden.

Rock Garden Design and Construction

Site Selection

Site selection should be a primary consideration before designing and building a rock garden. Important criteria for evaluating potential sites are exposure, drainage, background, natural features, and existing architecture.

Drainage is the single most critical factor in site selection. Most rock garden plants require excellent drainage for successful cultivation. A well-drained environment can be obtained only if the original site has good drainage. Take advantage of natural drainage by selecting a sloping site and avoiding low spots where water may stand even for brief periods. Choosing a location with

less-than-adequate drainage will prove to be a disappointing and discouraging experience.

Exposure dictates what type of plants can be grown at that location. Most rock garden plants prefer a sunny location, but a few of the choice specimens thrive in shaded areas. A site with a variety of exposures ranging from full sun to full shade will accommodate the greatest diversity of plant materials. However, if a choice must be made between a location with all sun or all shade, the sunny location should be selected.

Background is important in capturing the beauty of a rock garden. A naturalistic rock garden should not be built near architectural backgrounds such as buildings. The most desirable background is composed of a combination of conifers, broadleaved evergreens, and deciduous trees and shrubs. The contrasting foliage textures of these plants will provide depth and interest year round. If a suitable background does not exist, allow adequate space in the basic design for planting one. The depth of the background is variable, but it should be at least two plants deep. Planting should follow an informal arrangement, not a formal hedge planted in straight rows. The skyline created by the background should be irregular to enhance the natural effect of the garden.

Existing natural features can have a major influence on deciding where to locate a rock garden. With slight modification, a rock outcrop or stream may be an ideal site. However, most modern residential properties have had these features removed during construction.

The rock garden is but one element in the total landscape and should be situated with regard to existing architectural features. Rock walls and paving stones present an architectural form and provide an effective transition from the formality of a building to the informality of a naturalistic rock garden.

Any one location is not likely to conform to all of the criteria. But if a site cannot provide adequate growing conditions, it would be pointless to build a rock garden there, because the primary purpose of the site is to provide a satisfactory environment for cultivating rock garden plants. Other site selection criteria, such as background and architectural relationships, are important to good design but should not be used as the primary reason for abandoning the construction of a rock garden.

Wall Gardens

Wall gardens are both attractive and functional. A wall garden is a dry wall constructed with soil instead of mortar so that plants can be grown on the wall. The soil-filled crevices provide an excellent growing site for many interesting rock garden plants.

Designing a wall garden is fairly simple and straightforward because the retaining wall follows the curves and contours of an existing bank. Wall gardens can be from 1 to 5 feet tall, but walls taller than 5 feet should be held together with mortar for stability and, therefore, cannot be used for a wall garden. As the height of the wall increases, so should the thickness of the wall and the size of the stones.

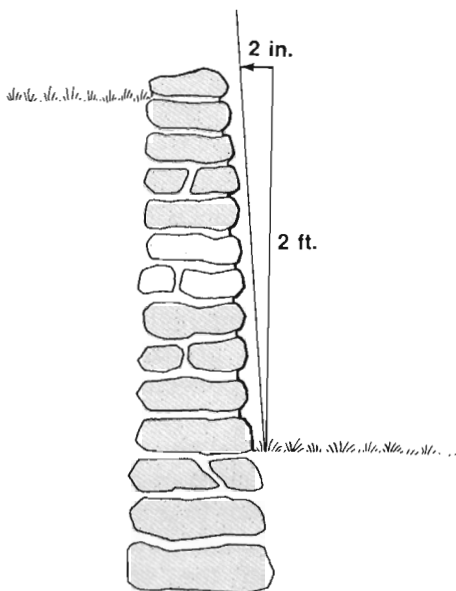


Figure 1. A rock garden wall should slope backwards 1 inch for every vertical foot.

Construction. The main principle of wall construction is to allow the wall to have a backward slope. This slope gives the wall strength and also enables rain to penetrate the wall surface. The recommended slope or *batter* is 1 inch back for every vertical foot. Therefore, a 3-foot-high wall would slope backwards 3 inches. The individual stones should also have a slight backward tilt to contain soil between the stones and prevent the stones from shifting during cycles of freezing and thawing.

Rock Selection. Many different types of rocks are suitable for wall construction. Choose a type of stone on the basis of availability rather than aesthetic qualities. One type of stone, not a mixture of different types, should be used throughout. The size and shape of the rocks are more important than the type of rock. Large rocks are necessary to build a wall that is strong and durable. The higher the wall will be, the larger the stones should be. Flat rocks with at least one square surface make the best dry walls.

Soil. Before constructing the dry wall, prepare the soil that will be used to fill the rock crevices and to back fill behind the wall. A special soil mix, prepared by adding sand and peat moss to the existing soil, will improve the drainage and moisture-holding capacity of the soil. Heavy clay soils should be mixed with equal parts of sand and peat moss to produce a loose, friable soil mixture. Top soil or garden loam can be improved by adding equal parts of sand and peat moss to two parts soil.

Laying the Wall. The first step in laying the wall is preparing the foundation. Low walls can be built directly on the ground without a foundation. However, walls that will be higher than 2 feet require an adequate foundation, which can be made by excavating

a strip 1 foot deep along the path of the wall. Place the largest stones in this ditch to serve as the foundation. Make sure that all the stones are firmly in place before proceeding with construction.

The prepared soil mixture could be used between the layers of rock as if it were mortar used to hold the wall together. Spread a 4-inch layer of soil over the stones. Work the soil into the vertical joints and pack it down firmly. Packing the soil prevents the wall from shifting and eliminates air pockets, which are harmful to the plants. Back fill the wall as each layer of stone is added.

Each new course of stone is laid in the same manner, but alternating so the vertical joints do not coincide. This process is continued until the wall reaches the desired height. Check the batter frequently to assure that the wall has the proper backward slope.

Planting. Plants can be placed in the wall either during or after construction. Each method has its advantages and disadvantages. Planting is easier during construction because the plants are custom fitted into the crevices and the roots can be spread out well. Trying to insert plants in the rock crevices after construction is a tedious job, and getting plants firmly in the wall may damage the roots. Seedlings or cuttings with small root systems should be

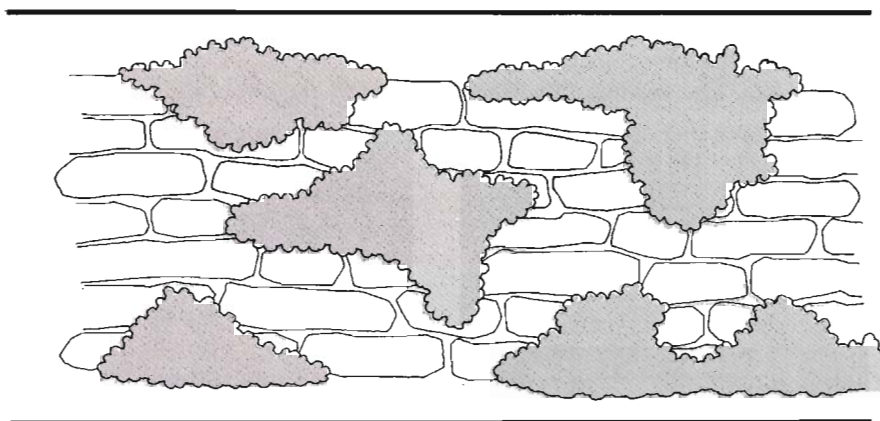
used to reduce root injury.

However, if planting is done during construction, plants may be accidentally damaged while the upper portion of the wall is laid. Another disadvantage to planting during construction is that it is difficult to visualize the placement of the plants before the entire wall is finished. Also, because most rock garden plants should be planted in the spring, planting during construction limits the time of the year when the wall can be built.

Planting Design. A planting design should be developed before a wall garden is actually planted. The design takes into consideration time of bloom, flower and foliage color, and plant shape. Its objective is to coordinate colors and arrange plants by blooming periods for a uniform display of flowers throughout the season.

Several basic design principles unique to wall gardens should be considered. One of the most common mistakes in planting a wall is overplanting. Much of the beauty of a wall garden is derived from the contrast of rocks and plants. Do not plant in straight rows or columns, but preferably in irregular masses, leaving ample portions of the wall exposed. Another factor that is often

Figure 2. Planting design. Arrange plants in irregular masses and leave portions of the wall exposed.



overlooked is planting above and below the face of the wall to add depth and interest to the wall garden. Allow some of the mass plantings to spill over and continue along the top and bottom of the wall. The top of the wall can also be planted with a few dwarf conifers to provide year-round interest.

Planting Depth. The correct planting depth will help to ensure the success of a wall garden. When a plant is inserted too deeply, the crown is exposed to excessive moisture and poor air circulation which result in rotting and eventual loss of the plant. However, if the planting is too shallow, roots that are exposed will perish and the plant will be lost. A little extra care during the planting process will be well rewarded later.

Naturalistic Rock Gardens

Design. Designing a naturalistic rock garden is more than merely arranging rocks and plants in a random manner. The difficulty lies in creating a natural effect rather than an artificial, man-made one. Building a naturalistic garden is an art that is best developed through experience and an understanding of basic design principles. Simple designs generally provide the most satisfying results. Do not attempt to build a scale model of a mountain range in your backyard; instead, work to capture the essence of a smaller, more personal natural setting. Trying to duplicate a site exactly is not nearly as important as trying to capture the overall effect of the site.

The type of stone that is used is not important as long as the same type is used consistently throughout the garden. Avoid the temptation to include exotic, shiny, or colored stones. Rocks with a weathered face are preferred to rocks that have been cut or broken.

Another common problem is the use of too many small rocks. The garden design should be based on a few large rocks strategically placed to create a naturalistic effect. Many small stones produce a busy appearance at best. Generally speaking, any rock that can be easily handled by one person is too small to be used as part of the backbone rock formation. Keep in mind that the size of the rocks should be in proportion to the size of the garden.

Construction. The primary objective of construction is to set the rocks firmly into place and to develop a site with good growing conditions. All of the topographic or contour modifications should be done before the rocks are laid, but do not overexaggerate contour changes by making large mounds of soil. After the basic shape of the garden has been formed, the rocks should be set into place. The procedure for placing rocks in the garden depends on whether stratified or unstratified rock is used.

An **outcrop** is a large underground rock formation that has a few exposed rock faces. Stratified rock such as limestone or sandstone formed from many layers or strata is best suited for constructing outcrops. Lines of stratification from the various rocks must be parallel and continuous. Generally, the angle of the strata is not important as long as it remains the same. However, on flat sites, the angle of the strata should be steep to expose the greatest surface area of the rock face. By placing the rocks deep into the ground and maintaining parallel strata, the impression of one large rock outcrop can be created. It is a good idea to place the largest, most dominant stone first and then align the strata of the smaller stones to the larger one. Always pack the soil around the rocks to keep them from settling and

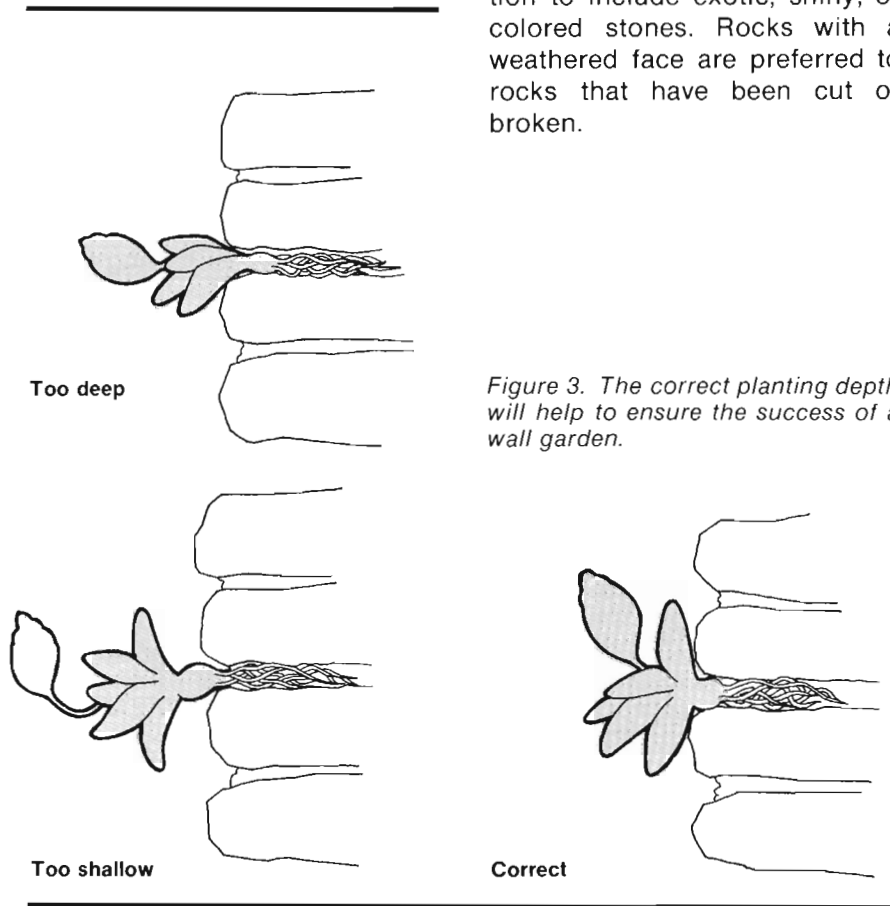


Figure 3. The correct planting depth will help to ensure the success of a wall garden.

altering the continuity of the strata.

Unstratified rock, a rounded type of stone that has been transported and deposited by glacial action, is best for making a **boulder field** rock garden. Because these rocks don't have lines of stratification to be matched, their placement becomes more arbitrary and possibly more difficult. Even so, a haphazard approach should not be adopted. Keep in mind that a few large boulders should be used as the main features. The rock arrangement should have a sense of balance; but in a naturalistic type of garden, do not rely on symmetry or uniformity to provide it. Instead, achieve balance in a naturalistic way by thinking of the central axis of the garden as a fulcrum. If a large stone is placed to the right of the fulcrum, then a natural sense of balance is attained by placing several smaller rocks to the left of the axis. Once the rocks are arranged, they should be buried to the original ground line or until they are firmly secured.

Drainage. Next, during this initial construction phase, make certain that the garden has the good drainage required by most rock garden plants. Normally, some soil modification will be necessary to provide optimum growing conditions. Heavy clay soils are difficult to amend and should be replaced, if possible. Garden loam can be made into suitable rock garden soil by mixing equal parts of sand or fine gravel with the soil and spreading it over the garden to a depth of 6 inches. No soil modifications are needed on a well-drained, gravelly soil.

Many choice alpinas are difficult to grow even in a well-constructed rock garden. These plants require extra-sharp drainage, which can be provided by building either a scree or a

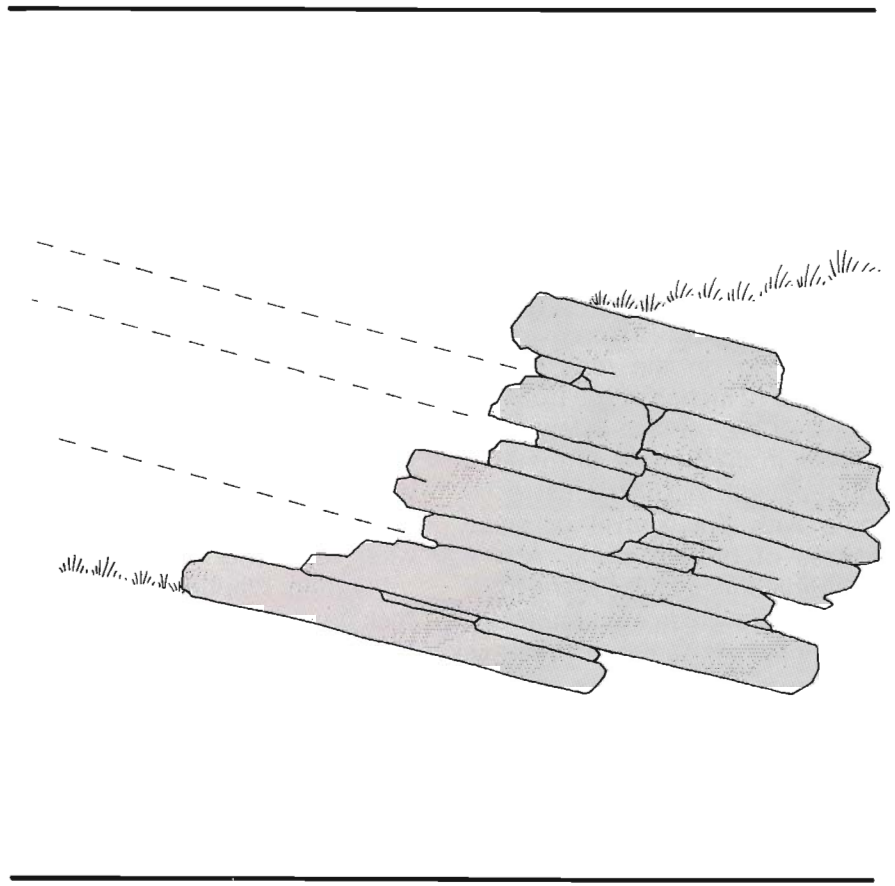


Figure 4. In an outcrop, the lines of stratification from the rocks must be parallel and continuous.

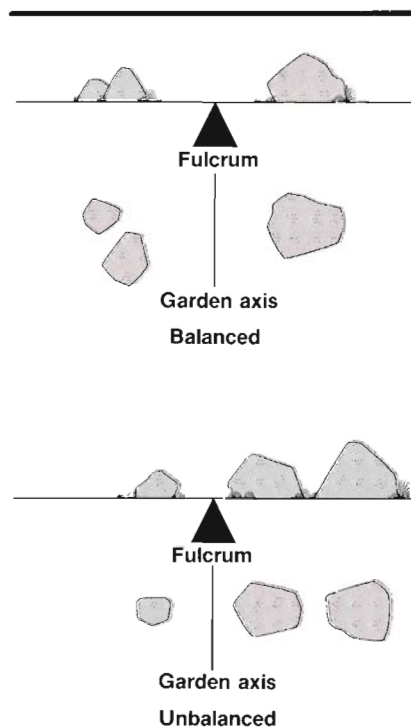


Figure 5. Achieve balance in a boulder field by thinking of the central axis of the garden as a fulcrum. A large stone placed to the right of the fulcrum is balanced with several smaller rocks placed to the left.

moraine. A naturally occurring **scree** is primarily composed of small rock fragments that have broken from and accumulated at the base of a large rock mass. A scree provides the rapid drainage preferred by many of the alpinists. To build a scree, select a site at the base of a large rock so that the accumulation of rock fragments appears to be a product of weathering on the rock above. Remove 12 inches of soil from the selected area. Place a few large stones in the bottom of the hole for drainage, and fill the rest of the hole with fine gravel or small pieces of broken stone. Add a little soil or peat moss to the top 2 inches to provide some nourishment. The extra-sharp drainage of the scree poses a greater possibility of drought in the summer, and the scree must be kept well watered during dry periods.

Probably the best location for growing difficult alpinists is the **moraine**. This site is composed of rock fragments that were deposited by glacial action. Because of the proximity of the glacier, the moraine is supplied with an underground flow of water from melting ice and snow during the summer. This site has the advantage of perfect drainage in the winter and ample moisture in the summer.

Building a moraine in the rock garden is similar to constructing a

scree, except for the addition of the underground irrigation. Once the area is excavated, a perforated water pipe is placed at the upper end. The bottom of the hole is covered with plastic so the water will seep along the base of the moraine. Fill the hole with the same mixture that is used to make a scree. The water can be turned on to a trickle and allowed to flow constantly during the summer. If water collects below the moraine, the flow rate is too high and should be decreased. Turn the water off completely in late summer; never allow it to run when the plants are dormant.

Planting. Planting a naturalistic rock garden is an enjoyable task, but some thought and planning is necessary to create the most desirable effect. A planting plan should be developed beforehand, with plants being located in a pleasing arrangement according to their cultural requirements.

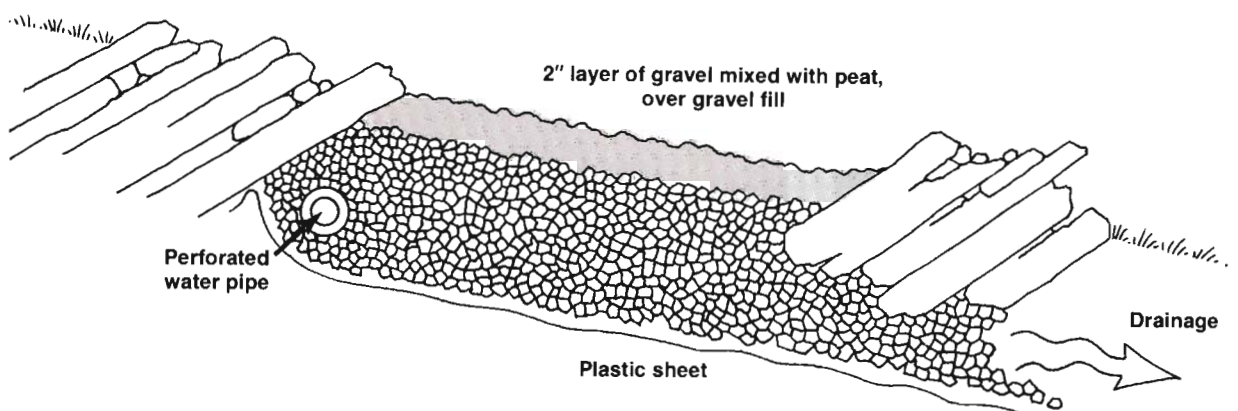
It is important to be aware of the various microclimates in the garden and to locate the plants according to their specific needs. Sometimes, you may have to place a choice plant in several locations before finding the niche where it grows best. Don't be afraid to experiment and to move plants around if they fail to respond well in their original site. Whenever a plant is planted or transplanted, it should be pressed firmly into the soil and replanted

at the same depth.

The first step in developing a pleasing planting arrangement is to become familiar with the following plant characteristics: time of bloom, flower color, size, and growth habit. In a naturalistic garden, planting in formal rows or geometrical patterns should be avoided. Planting in irregular groups will strengthen the desired naturalistic effect.

Rock garden plants can be grouped according to function in the design. They may be used for a mass effect or planted individually as specimens. Plants like *Arabis caucasica* and *Aubrieta deltoidea* are used most effectively as a mass planting for the background of the garden. Depending on the size of the garden, several plants are grouped together to form the mass. Some of the smaller plants, such as *Draba aizoides* or *Erinus alpinus* are best used as specimens. These plants are generally located in the foreground or in a rock crevice where they can be noticed and appreciated. In designing the planting arrangement, however, always keep in mind the naturalistic appearance of the garden.

Figure 6. In a moraine, water running through a perforated pipe provides for underground irrigation.



50 Common Rock Garden Plants

Thousands of rock garden plants are available; this list is intended as an introduction to what is an extremely large and diverse group. The plants included were selected for their beauty, availability, and ease of cultivation. The plant descriptions were designed to assist both the novice and intermediate rock gardener in selecting, identifying, and cultivating a typical group of rock garden plants. Many excellent books have been written about rock garden plants (see "Selected References").

Description: Plants perennial, evergreen, woody at the base, 10"-12" tall. Stems erect or ascending, mostly unbranched above. Leaves alternate or sometimes whorled, sessile, ½"-1" long, linear, glaucous with a bluish tint. The small, 4-petaled flowers are a light rose pink with darker veins and are borne in elongating terminal racemes. The fruit, which is important in distinguishing the other closely related species, is a concave-convex, suborbicular, winged silicle.

Landscape Description:

FLOWERS

Color: rose pink with darker veins

Time of Bloom: L-May-L-June

Showiness: showy

FOLIAGE

Color: blue green

Texture: fine

Quality: good-excellent

Site Requirements: full sun, well-drained soil, best in a scree or a dry wall.

Propagation: seeds, stem cuttings (summer)

Comments: Several species of *Aethionema* are similar and quite difficult to distinguish from one another. Hybridization among these species is common, and plants grown from seed often have intermediate characteristics. Plants with good qualities should be propagated asexually from soft wood cuttings in the summer after flowering. Cuttings should be transplanted soon after the formation of roots to prevent a delay in growth. If the cuttings remain in the rooting medium for too long, they become difficult to transplant and are often stunted. Mature plants are difficult to transplant because of the thick, brittle roots. Plants become lax after flowering, and a severe pruning is necessary to maintain a compact growth habit. 'Warley Rose' is a hybrid of uncertain origin, but one of the best *Aethionemas*.



Aethionema coridifolium
Cruciferae-Mustard Family

Lebanon Cress



Androsace lanuginosa
Primulaceae–Primrose Family
Rock-Jasmine

Description: Plants perennial, covered with long, soft, white hairs, to 8" tall. Stems prostrate, much branched, conspicuously red. Leaves both basal and cauline, elliptic to oblanceolate, 3/4"-1" long, sessile. The small, 5-lobed, rose pink flowers are borne on axillary, scapose, bracted umbels.

Landscape Description:

FLOWERS

Color: light rose pink with a darker eye
Time of Bloom: L-June-E-September
Showiness: good

FOLIAGE

Color: green with silver hairs
Texture: fine
Quality: excellent

Site Requirements: partial shade, moist, well-drained soil

Propagation: seeds, stem cuttings, division

Comments: A good rock garden plant that is especially useful for its late flowering period when few other rock garden plants are in bloom.



Androsace sarmentosa
Primulaceae–Primrose Family
Rock-Jasmine

Description: Plants perennial, stoloniferous, evergreen, not exceeding 4"-5" tall. Leaves all in basal rosettes 1"-2" across, spatulate to oblanceolate, pubescent when young, becoming glabrous later. The small 5-lobed rose pink flowers are borne on scapose, bracted umbels.

Landscape Description:

FLOWERS

Color: rose pink
Time of Bloom: L-May-M-June
Showiness: good

FOLIAGE

Color: dark green
Texture: medium
Quality: excellent

Site Requirements: full sun or partial shade, well-drained soil, adaptable to many sites.

Propagation: division of rooted rosettes

Comments: A choice, but easily grown plant suitable for any rock or wall garden. Several other species of *Androsace* are excellent for the rock garden, but they are more difficult to cultivate.



Anemone pulsatilla
Rununculaceae–Crowfoot Family
Pasque-Flower

Description: Plants perennial, 12"-15" tall, covered with long, soft hairs. Leaves mostly basal, 10"-12" long, pinnately divided into 7-9 segments, each segment 2-3 pinnatisect, with long petioles and winged stipules. The large, solitary flowers appear before the foliage and can exceed 3" across. The flowers, which lack true petals, are usually formed from 6 dark purple, petaloid sepals. The fruit is a cluster of achenes with plumose styles.

Landscape Description:

FLOWERS

Color: plum purple
Time of Bloom: L-April-M-May
Showiness: showy

FOLIAGE

Color: dark green
Texture: fine
Quality: excellent

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, root cuttings

Comments: A quality plant with interesting flowers, foliage, and fruit. The fruit is very ornamental and should be allowed to mature fully before removing.



Antennaria dioica
Compositae–Composite Family
Everlasting, Pussys-Toes

Description: Plants perennial, stoloniferous, forming a mat 4" tall. Stems prostrate and rooting. Leaves mostly in basal rosettes, 3/4"-1 1/4" long, spatulate with a mucronate tip, upper surface tomentose becoming green and subglabrous. Plants are dioecious and the flowers are in small discoid heads. The true flowers are inconspicuous, but they are surrounded by petaloid involucral bracts.

Landscape Description:

FLOWERS

Color: white-pinkish
Time of Bloom: M-May-E-June
Showiness: poor

FOLIAGE

Color: gray green
Texture: fine
Quality: excellent

Site Requirements: full sun, dry, well-drained soil

Propagation: seeds, division

Comments: Useful as a ground cover because of the thick evergreen mats of foliage. The flowers are barely conspicuous and of little interest.

Description: Plants perennial, mound-forming, to 10" tall, densely pubescent. The procumbent stems are slightly woody, but thin and brittle. Leaves both basal and cauline, obovate with several obtuse or acute teeth, cordate to auriculate at the base. The small, white, 4-petaled flowers are formed profusely on terminal racemes. The fruit is a long slender silique.

Landscape Description:

FLOWERS	FOLIAGE
Color: white	Color: green
Time of Bloom: L-April-L-May	Texture: medium
Showiness: very showy	Quality: fair

Site Requirements: full sun, moist, well-drained garden soil

Propagation: seed, stem cuttings

Comments: A broad, spreading plant best used in a dry wall or a large rock garden. Plants need to be sheared back after flowering to help maintain a neat, compact appearance.



Arabis caucasica
Cruciferae–Mustard Family
Rock Cross

Description: Plants perennial, mound-forming, to 6" tall. Stems erect or prostrate, purplish-brown when older. Leaves opposite, sessile, ½"–3" long, linear. The white, 5-petaled flowers form a solid mass above the foliage. The 10 stamens and 3 styles are fairly conspicuous.

Landscape Description:

FLOWERS	FOLIAGE
Color: white	Color: dark green
Time of Bloom: L-May-M-June	Texture: fine
Showiness: very showy	Quality: excellent

Site Requirements: full sun, well-drained soil

Propagation: seed

Comments: An excellent plant for a wall or rock garden. The trailing stems do not root along the ground; therefore, it is difficult to propagate by division or stem cuttings. Plants have good evergreen foliage all year except immediately after flowering. During this period, the entire plant seems to be near death. Soon, however, new growth begins and the plants resume their healthy, compact appearance.



Arenaria montana
Caryophyllaceae–Pink Family
Sandwort

Description: Plants perennial, caespitose, evergreen, flowers 10"–12" tall, foliage 4"–6" tall. Leaves crowded in basal rosettes, linear, to 4" long. The flowers are in dense, terminal, globose heads, about 1" across. Involucral bracts subtend the flowers and the 2 lower bracts form a scarious sheath. The individual florets have 5 petals and vary from white to a dark magenta.

Landscape Description:

FLOWERS	FOLIAGE
Color: pink	Color: dark green
Time of Bloom: L-May-M-June L-July-M-August	Texture: fine
Showiness: showy	Quality: excellent

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, division

Comments: A common, easily grown plant, but worthy of any rock or wall garden. *A. maritima* is an extremely variable species with many forms, often incorrectly listed under other species names.



Armeria maritima
Plumbaginaceae–Leadwort Family
Thrift, Sea Pink

Description: Plants perennial, to 10" tall. Stems erect, mostly unbranched. Leaves mostly basal, spatulate, 3"–4" long, apex obtuse, petioles long and winged. The flowers are aggregated into heads about 2" across. Ray flowers are pistillate, ligulate, and lavender. Disk flowers are bisexual, tubular, 5-lobed, and yellow.

Landscape Description:

FLOWERS	FOLIAGE
Color: lavender	Color: dark green
Time of Bloom: L-May-M-June	Texture: medium
Showiness: very showy	Quality: fair

Site Requirements: full sun, well-drained garden soil

Propagation: seed, division

Comments: Fairly easily grown, but very susceptible to aster rust. The rust fungus will not kill the plant, but it produces large masses of orange spores which reduce foliage quality.



Aster alpinus
Compositae–Composite Family
Mountain Aster



Aubrieta deltoidea
Cruciferae–Mustard Family
Common Aubrieta

Description: Plants perennial, mound-forming, pubescent, 6”–8” tall. Stems erect to prostrate, thin and brittle. Leaves crowded, ½”–¾” long, rhombic to spatulate, entire or with 1–2 teeth on each side. The small, 4-petaled flowers are a deep purple and are borne on a mass of terminal racemes.

Landscape Description:

FLOWERS

Color: violet
Time of Bloom: L–April–E–June
Showiness: very showy

FOLIAGE

Color: gray green
Texture: fine
Quality: good

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, division, stem cuttings

Comments: A commonly grown plant with many named cultivars available. An especially good specimen for dry walls and rock crevices where the stems can grow over rocks and keep the foliage free from splashing mud. To maintain floriferousness, prune plants back after the flowers fade.



Aurinia saxatilis
Cruciferae–Mustard Family
Basket-of-Gold, Golden-Tuft

Description: Plants perennial, mound-forming, pubescent, slightly woody at the base, 10”–12” tall. Stems erect to prostrate with age. Leaves alternate or whorled, 4”–6” long, oblanceolate to obovate with an obtuse apex. The small, 4-petaled flowers are a very bright yellow and are borne in dense panicles. The fruit is a round, flat silicle.

Landscape Description:

FLOWERS

Color: very bright yellow
Time of Bloom: M–May–L–May
Showiness: very showy

FOLIAGE

Color: gray green
Texture: medium
Quality: good

Site Requirements: full sun, well-drained soil with low fertility

Propagation: seeds, stem cuttings

Comments: A common, easily grown plant, best used in a dry wall or a large rock garden. The intensity of the flower color creates a bold effect that needs to be used in moderation. Several cultivars with a more compact growth habit and subdued flower color are available and should be selected.





Campanula

Campanulaceae–Campanula
Family
Bellflower

A large and popular group, which contains many choice plants suitable for the rock and wall garden. Those listed here are easily grown, but many of the true alpine species are a challenge for even the experts. Several books have been devoted solely to the genus *Campanula*; this is merely an introduction to one of the primary groups of plants used in rock gardens.

Description: Plants perennial, mound-forming, glabrous, 1'–1½' tall. Stems erect to decumbent, much branched, with decurrent ridges. Leaves alternate, slightly toothed; basal leaves broadly ovate, long petioled; cauline leaves decreasing in size, short petioled. The violet, 5-lobed flowers are broadly campanulate and about 1½" across.

Landscape Description:

FLOWERS	FOLIAGE
Color: blue	Color: green
Time of Bloom: L-June–L-August	Texture: medium
Showiness: showy	Quality: fair

Site Requirements: full sun or partial shade, well-drained garden soil

Propagation: seeds

Comments: A fairly robust plant which self-sows vigorously and therefore should not be grown among the smaller alpines. The weak stems tend to fall over in the late summer, causing a straggly appearance. A white-flowered form, 'Alba', is common in the trade.



Campanula carpatica

Tussock Bellflower

Description: Plants perennial, mound-forming, to 6" tall. Stems decumbent to ascending, much branched, glabrous. Basal leaves long petioled, ovate-cordate, doubly dentate; cauline leaves similar, but smaller. Corolla nearly rotate, deeply 5-lobed, to 1" across, violet. Calyx 5-parted, distinctly 5-veined.

Landscape Description:

FLOWERS	FOLIAGE
Color: violet	Color: green
Time of Bloom: M-May–L-June, scattered until frost	Texture: fine
Showiness: good	Quality: excellent

Site Requirements: full sun or partial shade, well-drained garden soil

Propagation: seeds, division

Comments: More compact and desirable than *C. carpatica*, but more difficult to grow. Does well in a rock wall or a rock crevice. Commonly sold simply as *C. garganica*.



**Campanula elatines var.
garganica**

Bellflower

Description: Plants tuberous perennials, foliage appears in autumn and goes dormant in the spring. Leaves obcordate, long petioled, irregularly toothed, dark green with spots. Scapes with a single, nodding flower. Corolla 5-lobed, ½"–¾" long, strongly reflexed, rose or white, slightly fragrant.

Landscape Description:

FLOWERS	FOLIAGE
Color: rose or white	Color: mottled green and silver
Time of Bloom: L-August–M-October	Texture: medium
Showiness: showy	Quality: excellent

Site Requirements: partial shade, moist, fertile, well-drained soil high in organic matter.

Propagation: seed

Comments: The last of the rock garden plants to bloom. The foliage develops during the autumn blooming period and persists throughout the winter and spring. The plant then becomes dormant to withstand the hot, dry months of summer. Not easily grown unless all the cultural requirements are met.



Cyclamen neapolitanum

Primulaceae–Primrose Family
Hardy Cyclamen



Dianthus

Caryophyllaceae–Pink Family
Pinks

This is one of the most popular groups of plants used in the rock garden. It is a very large group with many species and hybrids available in the trade. One characteristic of the genus is the ease with which the species cross-pollinate. Therefore, plants propagated from seed seldom reproduce true to type. Many other *Dianthus* besides those listed below should be welcomed into the rock or wall garden.



Dianthus alpinus

Mountain Pink

Description: Plants perennial, caespitose, glabrous, to 6" tall. Leaves opposite, sessile, united at the base; cauline leaves 3–4 pairs, linear; basal leaves linear-lanceolate, 1"–1½" long, apex obtuse. The 5-petaled flowers, approximately 1" across, are a bright magenta with a ring of darker spots at the base. The petals are long clawed, bearded at the base and have a denticulate apex. The long calyx is subtended by 2–4 epicalyx scales.

Landscape Description:

FLOWERS

Color: Magenta with a darker eye
Time of Bloom: L-May–M-June
Showiness: very showy

FOLIAGE

Color: dark glossy green
Texture: fine
Quality: excellent

Site Requirements: full sun or light shade, well-drained soil

Propagation: division, stem cuttings

Comments: An excellent plant recommended for all rock gardens. Seed propagation is easy but not recommended because of the poor quality progeny obtained due to interspecific hybridization. Requires an annual topdressing after flowering to prevent the center of the plant from dying out. Sprinkle a handful of loose soil over the plant and gently work it down into the crown.



Dianthus deltoides

Maiden Pink

Description: Plants perennial, mound-forming, to 16" tall. Stems erect to decumbent, much branched, puberulent. Leaves opposite, ½"–¾" long, united at the base, linear. The 5-petaled flowers, approximately ¾" across, are a magenta with a darker ring surrounded by white spots. The petals are long clawed, bearded at the base, and toothed at the apex. The long calyx is subtended by 2 epicalyx scales.

Landscape Description:

FLOWERS

Color: magenta with a darker eye
Time of Bloom: E-June–M-July
Showiness: very showy

FOLIAGE

Color: dark green
Texture: fine
Quality: good

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, division

Comments: A fine specimen, but too vigorous to be planted near the smaller, more prized alpinus. A good choice for the beginner.



Dianthus pavonius

Description: Plants perennial, caespitose, glabrous, 2"–4" tall. Leaves opposite, ¾"–1¼" long, linear, united at the base. The 5-petaled flowers, approximately 1" across, are a light magenta above, buff color below, with greenish markings in the throat. The petals are long clawed, irregularly toothed, and slightly bearded. The 2 epicalyx scales are ovate with a long subulate apex.

Landscape Description:

FLOWERS

Color: light magenta
Time of Bloom: L-May–L-June
Showiness: good

FOLIAGE

Color: light green
Texture: fine
Quality: excellent

Site Requirements: full sun, well-drained soil

Propagation: division, seed collected from the wild

Comments: A choice alpine suitable for any rock garden and commonly sold under the name *D. neglectus*. Seed propagation is easy, but not recommended unless seeds were collected from the wild. Seeds collected from the garden will produce poor progeny because of interspecific hybridization. An annual topdressing of loose soil will help prevent the center of the plant from dying out.

Description: Plants perennial, caespitose, evergreen, flowers to 4" tall. Leaves in basal rosettes, ½" long, linear, conspicuously ciliate. The small, 4-petaled flowers are a bright yellow and are borne in elongating terminal racemes. The petals are obovate, emarginate, tapering to a short claw. The fruit is an ellipsoid silique.

Landscape Description:

FLOWERS	FOLIAGE
Color: lemon yellow	Color: dark green
Time of Bloom: L-April-M-May	Texture: fine
Showiness: good	Quality: excellent

Site Requirements: full sun, very well-drained soil, does best in a scree

Propagation: seeds, division

Comments: A tiny, but excellent, trouble-free plant. An annual topdressing of loose soil will promote a neat, compact appearance.



Draba aizoides
Cruciferae–Mustard Family

Description: Plants perennial, to 20" tall. Stems square, erect or ascending, slightly pubescent. Leaves opposite, linear-lanceolate, 2" long, margins revolute; upper leaves sessile, the lower petiolate. The 1" long, blue, 2-lipped flowers are borne in 2-6 flowered terminal spikes. The upper lip is 2-lobed and the lower lip is 3-lobed with spots. The calyx is subtended by ovate bracts.

Landscape Description:

FLOWERS	FOLIAGE
Color: blue	Color: dark green
Time of Bloom: M-June-L-July	Texture: medium
Showiness: showy	Quality: excellent

Site Requirements: full sun, well-drained garden soil

Propagation: seed, stem cuttings

Comments: The excellent foliage and interesting blue flowers make this a quality plant worthy of greater use.



Dracocephalum ruyschiana
Labiatae–Mint Family
Dragonhead

Description: Plants perennial, to 6" tall. Leaves evergreen, alternate toothed, ovate-elliptic to oblong. Flowers 1" across, sepals with black hairs, petals 7-9, white.

Landscape Description:

FLOWERS	FOLIAGE
Color: white	Color: dark glossy green
Time of Bloom: M-May-L-June	Texture: medium
Showiness: good	Quality: excellent

Site Requirements: full sun, very well-drained soil, best in a scree

Propagation: seed, soft-wood cuttings

Comments: A common plant in the Alps that is welcome in the rock garden. The lovely flowers are followed by interesting, feathery seeds, which are an added attraction.



Dryas octopetala
Rosaceae–Rose Family
Mountain Avens

Description: Plants perennial, evergreen, to 4" tall. Leaves alternate, ½"-1" long, mostly in terminal rosettes, spatulate, toothed near the apex. Flowers in bracted racemes. Corolla with 5 unequal lobed, 2 upper, 3 lower, rose purple.

Landscape Description:

FLOWERS	FOLIAGE
Color: rose purple	Color: dark green
Time of Bloom: E-June-E-July	Texture: fine
Showiness: good	Quality: good

Site Requirements: partial shade, well-drained soil, best in a scree

Propagation: seeds, stem cuttings

Comments: Not tolerant of excessive winter moisture. Plants should be located in rock crevices to protect the foliage and provide sharp drainage. An excellent specimen for the wall garden. Numerous self-sown seedlings will be scattered around the wall without becoming a nuisance. A white flowered form, 'Albus', is commonly available.



Erinus alpinus
Scrophulariaceae–Figwort Family
Liver-balsam



Geranium sanguineum var. prostratum
 Geraniaceae–Geranium Family
 Cranesbill

Description: Plants perennial, compact, 10"–12" tall. Stems erect to decumbent, much branched, swollen at the nodes, pubescent. Leaves opposite, orbicular in outline; 2–5 palmately parted with 2–3 lobed segments; stipules brown and persistent. The 5-petaled flowers, approximately 1" across, are rose pink with darker veins. The long-beaked fruit coils up and ejects the seeds when they are mature.

Landscape Description:

FLOWERS	FOLIAGE
Color: rose pink with darker veins	Color: dark green
Time of Bloom: L-May–L-July	Texture: fine
Showiness: good	Quality: excellent

Site Requirements: full sun or light shade, well-drained garden soil

Propagation: seeds, division, root cuttings

Comments: A nice, easily grown plant with a fairly long blooming period. Even the dwarf form, *G. sanguineum var. prostratum*, is somewhat too robust for the small rock garden. A satisfactory plant where space is not a limiting factor.



Geum x borisii Hort.
 Rosaceae–Rose Family
 Avens

Description: Plants perennial, flowers to 16" tall. Stems erect or ascending, slightly branched, with glandular hairs above. Leaves mostly basal, soft-pubescent, coarsely toothed, 6"–10" long including the petiole, pinnate, terminal leaflet very large, irregularly palmately lobed. The very bright orange flowers are 1"–1½" across, usually with 5 suborbicular petals. The 5–7 sepals alternate with smaller bractlets.

Landscape Description:

FLOWERS	FOLIAGE
Color: very bright orange	Color: green
Time of Bloom: M-May–E-June	Texture: coarse
Showiness: showy	Quality: fair

Site Requirements: full sun or partial shade, well-drained garden soil

Propagation: division

Comments: Though this is an easy plant to grow, it should be used sparingly because of the very bright flowers and bold foliage. The foliage may be bothered by spider mites during the hot, dry days of late summer.



Hedyotis caerulea
 Rubiaceae–Madder Family
 Bluets, Quakerladies

Description: Plants perennial, evergreen, forming a dense cushion to 5" tall. Stems erect, square, glabrous, much branched at the base. Leaves opposite; basal leaves long-petioled, only ½" long, spatulate; cauline leaves short-petioled, oblanceolate. The tiny, 4-lobed flowers are formed in profusion. The salverform corolla is a pale blue with a yellow eye.

Landscape Description:

FLOWERS	FOLIAGE
Color: pale blue with a yellow eye	Color: dark green
Time of Bloom: L-April–M-June	Texture: fine
Showiness: very showy	Quality: good

Site Requirements: full sun or partial shade, well-drained garden soil

Propagation: seeds, division

Comments: A very tiny, but floriferous plant which deserves greater use. Not a true alpine, but compatible with the choicest of the alpinas. This native wildflower is familiar to most people by the old name *Houstonia caerulea*.



Helianthemum nummularium
 Cistaceae–Rock-Rose Family
 Sun Rose

Description: Plants prostrate, evergreen subshrubs, to 1' tall and 2' wide. Leaves opposite, petioled, ½"–1½" long, lanceolate, margins revolute, glabrous above, pubescent below; stipules long. The 5-petaled flowers are borne on 1-sided racemes and come in a variety of colors, from white to rose pink. Sepals 5, outer 2 smaller, inner 3 larger, distinctly 4–5 nerved. The fruit is a three-sided dehiscent capsule.

Landscape Description:

FLOWERS	FOLIAGE
Color: rose pink-white	Color: dark green
Time of Bloom: L-May–L-June	Texture: fine
Showiness: showy	Quality: good

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, stem cuttings

Comments: A valued garden plant in Europe which deserves more attention in the United States. Flowers come in all colors except blue; however, few named varieties are sold in the United States. When plants are propagated from seed, a mixture of flower color should be expected. Possibly too robust for the small rock garden, but excellent to use when space is available.

Description: Plants perennial, basal leaves mound-forming, to 8" tall, inflorescence erect, to 2' tall. Leaves mostly basal, cordate and ovate-orbicular, palmately lobed, serrate; petioles long; stipules winged. The tiny flowers are borne on many-flowered, bracted panicles. The conspicuous part of the flower is the 5-lobed, campanulate calyx which varies from rose red to carmine. The 5 petals are inconspicuous because they are inserted inside the calyx tube.

Landscape Description:

FLOWERS

Color: rose red-carmine
Time of Bloom: L- May-L-July
Showiness: showy

FOLIAGE

Color: green
Texture: coarse
Quality: good

Site Requirements: full sun, well-drained garden soil

Propagation: seeds, division is difficult

Comments: Commonly used for a perennial border, but we recommend it for most rock gardens. Many plants have a dull, faded flower color, but variants with darker, more attractive colors are available and should be selected. This plant is an asset to the rock garden because of its long flowering period and because it attracts hummingbirds.



Heuchera sanguinea
Saxifragaceae-Saxifrage Family
Coralbells

Description: Plants perennial subshrubs, glabrous, to 6" tall. Stems prostrate and rooting at the nodes, 2-angled or terete and 2-winged. Leaves opposite, 1/2" long, lanceolate, grayish green with translucent dots. Petals 5, oblique, bright yellow. Stamens numerous, connate at the base into 3 bundles.

Landscape Description:

FLOWERS

Color: bright yellow
Time of Bloom: M-June-M-July, with scattered flowers until frost
Showiness: good

FOLIAGE

Color: gray green
Texture: fine
Quality: excellent

Site Requirements: full sun, almost any soil

Propagation: seeds, division, stem cuttings

Comments: Somewhat sparsely flowered, but the flowers are rather large and brightly colored. The low, spreading habit can be used most effectively when the plant is allowed to grow around and over rocks. A good choice for some of the hotter areas of the rock garden.



Hypericum olympicum
Hypericaceae-St. Johnswort Family

Olympic St John's Wort

Description: Plants perennial, evergreen, glabrous, woody at the base, 10"-12" tall. Stems procumbent with decurrent ridges. Leaves alternate, 1"-2" long, linear, obtuse. The small, 4-petaled, white flowers are borne on elongating terminal racemes. The 2 outer petals are twice as large as the 2 inner petals.

Landscape Description:

FLOWERS

Color: white
Time of Bloom: M-May-E-June
Showiness: very showy

FOLIAGE

Color: dark glossy green
Texture: fine
Quality: excellent

Site Requirements: full sun or partial shade, well-drained soil

Propagation: seeds, stem cuttings, layers

Comments: A common, easily grown plant, familiar to many perennial borders, but also adaptable to the rock garden. Pruning after flowering will promote new, compact growth and increase floriferousness.



Iberis sempervirens
Cruciferae-Mustard Family

Edging Candytuft





Iris chamaeiris
Iridaceae-Iris Family
Dwarf Iris

Description: Plants perennial, rhizomatous, forming a dense clump, to 1' tall. Leaves linear, acute, 8"-12" long, glaucous. The solitary flowers are subtended by 2 spathe-valves. Falls 3, obovate, recurved, bearded with thick hairs, dark purple. Standards 3, erect and arching, similar to falls in size and shape, dark purple.

Landscape Description:

FLOWERS	FOLIAGE
Color: dark purple	Color: green
Time of Bloom: E-May-L-May	Texture: medium
Showiness: very showy	Quality: good

Site Requirements: full sun, well-drained soil

Propagation: division

Comments: Most plants sold as *I. pumila* are usually *I. chamaeiris*. Even though they vary taxonomically, they are essentially identical as far as their use in the garden is concerned. Many named cultivars are available in a wide range of colors. Like most Iris, it is necessary to divide the clumps every 2-3 years.



Iris cristata 'Alba'
Iridaceae-Iris Family
Dwarf Crested Iris

Description: Plants perennial, rhizomatous, to 10" tall. Leaves basal and cauline; basal leaves, 6"-10" long, ensiform, equitant; cauline leaves few, much smaller. The solitary flowers are subtended by 2 spathe-valves. Falls 3, 1"-1¼" long, obovate, recurved, white, crest yellow tipped. Standards 3, recurved, 1¼"-1½" long, obovate, white.

Landscape Description:

FLOWERS	FOLIAGE
Color: white	Color: yellowish green
Time of Bloom: L-May-E-June	Texture: medium
Showiness: good	Quality: poor

Site Requirements: partial shade, moist, fertile well-drained soil

Propagation: division

Comments: A native wildflower of the eastern United States that is rarely found in nature. Since its introduction into the garden, however, it has become fairly common.



Linum flavum
Linaceae-Flax Family
Golden Flax

Description: Plants perennial, glabrous, woody at the base, to 16" tall. Stems erect or ascending. Leaves alternate, sessile, with brown stipular glands; lower leaves spatulate; upper leaves lanceolate. Petals 5, ¾"-1" long, obovate with a short claw, bright lemon yellow.

Landscape Description:

FLOWERS	FOLIAGE
Color: lemon yellow	Color: green
Time of Bloom: M-June-E-September	Texture: medium
Showiness: very showy	Quality: good

Site Requirements: full sun, well-drained soil

Propagation: seeds, stem cuttings

Comments: An easily grown plant with a long flowering period. Especially useful because it begins flowering when many other plants are finished and it continues to flower throughout the summer.



Lithodora diffusa
Boraginaceae-Borage Family
Gromwell

Description: Plants prostrate, evergreen subshrubs, pubescent, to 6" tall. Leaves alternate, sessile, ½"-1" long, linear-lanceolate, margins revolute. Corolla 5-lobed, salverform, ½" across, throat surrounded by dense hairs, small blue.

Landscape Description:

FLOWERS	FOLIAGE
Color: small blue	Color: dark green
Time of Bloom: L-May-L-June, scattered throughout the summer	Texture: fine
Showiness: very showy	Quality: excellent

Site Requirements: light shade, moist, fertile, well-drained soil

Propagation: stem cuttings

Comments: A very handsome, evergreen subshrub with deep blue flowers. Only marginally hardy in New York State, but well worth trying. More commonly known by the old name *Lithospermum diffusum*. 'Grace Ward' is a popular cultivar.

Description: Plants perennial, caespitose, with erect flowering stems 4"-6" tall. Basal leaves in crowded rosettes, 1½" long, linear; cauline leaves few, opposite, 2" long. The inflorescence is a 13- to 20-flowered, dense, terminal head. Petals 5, 2-lobed, minutely appendaged at the base, magenta. Calyx inflated, 5-toothed.

Landscape Description:

FLOWERS

Color: magenta
Time of Bloom: M-May-L-May
Showiness: showy

FOLIAGE

Color: dark green
Texture: fine
Quality: good

Site Requirements: full sun or partial shade, well-drained soil

Propagation: seed, stem cuttings

Comments: This plant has both good flowers and good foliage but is often short lived. Therefore, it is desirable to allow the plant to self-sow freely in the garden.



Lychnis alpina
Caryophyllaceae-Pink Family
Arctic Campion

Description: Plants perennial, mat-forming, to 6" tall. Stems prostrate, densely interwoven, rooting at the nodes. Leaves ½"-¾" long, elliptic to suborbicular, each side with 3-4 coarse teeth. Flowers in terminal 1-sided racemes. Corolla bilabiate, ¾"-1" long, upper lip small, lower lip much larger, throat with 2 conspicuous white ridges, purple with orange spots.

Landscape Description:

FLOWERS

Color: purple
Time of Bloom: L-May-L-June
Showiness: showy

FOLIAGE

Color: green
Texture: fine
Quality: good

Site Requirements: partial shade, moist, well-drained soil

Propagation: division

Comments: A fine plant, except for its rampant nature. Best used in a large rock garden or between paving stones where it can be contained naturally. Large mats require constant maintenance to keep weed-free and to hold it in bounds. Susceptible to spider mites during the hot, dry days of late summer.



Mazus reptans
Scrophulariaceae-Figwort Family

Description: Plants perennial, to 1' tall. Stems erect to decumbent. Leaves alternate, 4"-5" long, narrowly elliptic-lanceolate. The large, 4"-5" wide flowers are solitary in the leaf axils. Petals 4, broadly obovate, lemon yellow. The fruit is a 4-winged capsule.

Landscape Description:

FLOWERS

Color: lemon yellow
Time of Bloom: M-May-L-August
Showiness: showy

FOLIAGE

Color: glossy green
Texture: coarse
Quality: good

Site Requirements: full sun, any well-drained soil, tolerant of dry sites

Propagation: seeds

Comments: A rather large, coarse plant best used in a large rock garden. The enormous, brightly colored flowers open up in the evening and close the following day before the heat of the afternoon. During cloudy weather, the flowers are likely to remain open all day. Each individual flower is rather short lived, but the overall flowering period is long.



Oenothera missouriensis
Onagraceae-Evening Primrose Family
Missouri Evening Primrose

Description: Plants evergreen subshrubs, much branched, 12"-16" tall. Stems erect to decumbent, rooting at the nodes. Leaves opposite, ½"-¾" long, linear to filiform, mucronate, clasping. The flowers are borne on leafy, 1-sided panicles. Corolla tubular, bilabiate, to 1½" long; lower lip 3-lobed; upper lip erect, slightly 2-lobed, bright scarlet. Staminode yellow-bearded, partly exerted.

Landscape Description:

FLOWERS

Color: bright scarlet
Time of Bloom: M-June-E-August
Showiness: showy

FOLIAGE

Color: green
Texture: fine
Quality: excellent

Site Requirements: full sun, well-drained soil

Propagation: division of rooted stems

Comments: An excellent, evergreen subshrub from the mountains of Arizona and Mexico. Long flowering period and excellent foliage quality make this specimen suitable for use in any rock garden. However, low foliage density allows weed seeds to germinate in the middle of the plant. Weeds must be removed before they become established and overrun the desired plant.



Penstemon pinifolius
Scrophulariaceae-Figwort Family



Phlox subulata
 Polemoniaceae–Phlox Family
 Moss-Pink

Description: Plants perennial, evergreen, mat-forming, 5"–10" tall. Stems prostrate or ascending, rooting, turning woody with age. Leaves opposite, ¼" long, linear-subulate, sessile and clasping. Corolla salverform; corolla-tube nearly twice as long as the calyx, constricted at the throat limb; 5-lobed, ½"–¾" across, lobes notched; magenta.

Landscape Description:

FLOWERS

Color: magenta, lavender, white
 Time of Bloom: M-May–E-June
 Showiness: very showy

FOLIAGE

Color: green
 Texture: fine
 Quality: excellent

Site Requirements: full sun, well-drained soil

Propagation: stem cuttings

Comments: A common plant often snubbed by the experienced rock gardener because of the vigorous growth habit and garish flower color. However, many cultivars are available with compact growth and a variety of pleasing flower colors. A few of the many fine cultivars are 'Millstream Daphne', 'Millstream Jupiter', and 'Sneewichen'.



Potentilla crantzii
 Rosaceae–Rose Family
 Potentilla

Description: Plants perennial, from a stout rootstock, 6"–8" tall. Vegetative stems short, decumbent, not rooting; reproductive stems to 12" long. Leaves palmately compound, usually with 5 leaflets, coarsely toothed; leaflets obovate to oblanceolate; long petioled; stipules large. The bright lemon yellow flowers are borne on radiating cymes. Petals 5, broadly obovate. Calyx 5-parted, alternating with 5 smaller bracts.

Landscape Description:

FLOWERS

Color: lemon yellow
 Time of Bloom: M-May–M-June
 Showiness: very showy

FOLIAGE

Color: green
 Texture: medium
 Quality: good

Site Requirements: full sun, well-drained soil

Propagation: seeds, division

Comments: A good rock garden specimen, commonly known as *P. verna* 'Nana'. An easily grown, trouble-free plant with good flower and foliage quality.



Primula
Primulaceae-Primrose Family
Primrose

Another one of the backbone groups of rock gardening. This enormous group offers a lifetime of study and enjoyment. Several books are available solely on the genus *Primula* and should be consulted for selection of other species. The few species listed here are some of the more popular *Primulas* and serve as a good introduction to this group.

Description: Plants perennial, to 8" tall in flower. Leaves in a basal rosette, 3½"-5" long, thick and fleshy, obovate, tapering to a winged petiole. Flowers in scapose, bracted umbels. Corolla salverform; limb 5-lobed, ¼"-1" across, lobes emarginate; many colors, but usually with a contrasting eye. Calyx and pedicels are densely farinose.

Landscape Description:

FLOWERS	FOLIAGE
Color: yellow, red, brown often with a contrasting eye	Color: light green
Time of Bloom: M-May-L-May	Texture: coarse
Showiness: showy	Quality: good

Site Requirements: partial shade, requires a moraine or a planted wall for good results.

Propagation: division

Comments: A group of alpine primulas which are fairly difficult to grow. These choice plants have been the subject of hybridization for years and many cultivars are available in a wide range of flower colors.



Primula auricula
Auricula

Description: Plants perennial, forming a mound of foliage, 12"-16" tall. Stems erect, scapose, farinose above, glabrous below. Leaves spatulate to oblanceolate, expanding to 12" long, denticulate; petiole winged. Flowers in bracted umbels. Corolla salverform, limb 5-lobed, ½" across, lobes obcordate; magenta with a yellow eye. Calyx farinose.

Landscape Description:

FLOWERS	FOLIAGE
Color: magenta with a yellow eye	Color: green
Time of Bloom: L-April-M-May	Texture: coarse
Showiness: showy	Quality: good

Site Requirements: partial shade, moist, fertile garden soil

Propagation: seeds, division

Comments: After flowering, the foliage expands and becomes large and coarse. The size of the foliage makes it necessary to reserve this plant for the larger rock gardens.



Primula denticulata
Himalayan Primrose

Description: Plants perennial, forming a mound of foliage, 6"-8" tall. Stems erect, scapose, slightly farinose. Leaves spatulate to oblanceolate, expanding to 4"-5" long after flowering, irregularly denticulate, glabrous above, densely white farinose below. Flowers in bracted umbels. Corolla salverform; limb 5-lobed, ½" across, lobes obovate, emarginate; pale purple with a yellow eye. Calyx densely farinose.

Landscape Description:

FLOWERS	FOLIAGE
Color: purple with a yellow eye	Color: green above, white farinose below
Time of Bloom: E-May-L-May	Texture: medium
Showiness: good	Quality: excellent

Site Requirements: partial shade, moist, well-drained garden soil

Propagation: seeds, division

Comments: A choice rock garden plant that is fairly easy to grow.



Primula frondosa
Birdseye Primrose



Primula sieboldii
Siebold primrose

Description: Plants perennial, creeping, pubescent. Stems erect, scapose, 10"-12" tall. Leaves ovate, 2½"-5" long, cordate at the base, crenate with dentate teeth; petioles equaling or exceeding the blade. Flowers in bracted umbels. Corolla salverform; limb 5-lobed, lobes obovate, emarginate; white, rose, or purple

Landscape Description:

FLOWERS

Color: white, rose, or purple
Time of Bloom: M-May-L-May
Showiness: good

FOLIAGE

Color: light green
Texture: coarse
Quality: fair

Site Requirements: partial shade, well-drained garden soil

Propagation: division

Comment: One of the easiest and most reliable of all the primroses. It is normal for the foliage to die back in late summer.



Sanguinaria canadensis
Papaveraceae-Poppy Family
Bloodroot

Description: Plants perennial, rhizomatous, with reddish-orange sap, to 1' tall. Rhizomes creeping, branched; flowering stems erect, scapose, 6"-8" tall. Leaves solitary, cordate to reniform, to 8" across, irregularly palmately lobed. Petals 8 or more, ¾"-1" long, oblanceolate, white.

Landscape Description:

FLOWERS

Color: white
Time of Bloom: L-April-M-May
Showiness: showy

FOLIAGE

Color: green
Texture: coarse
Quality: good

Site Requirements: partial shade, moist, fertile soil

Propagation: seeds, division

Comments: A common, woodland wildflower that is suitable for shaded areas of the rock garden. 'Multiplex' is a double-flowered form which is frequently grown.



This is a very large genus that includes many excellent plants, suitable to both the novice and expert rock gardener. Because of the size and complexity of this genus, botanists have grouped the species into sections based upon natural relationships. Of the 15 recognized sections, 3 of those, Euaizoon (Mossy), Dactyloides (Encrusted), and Kabschia are commonly grown in rock gardens. The Kabschia group has been excluded from this bulletin because of its demanding cultural requirements.

The tendency of members of each section to hybridize freely with other species in the section has added to the botanical complexity of the group, but at the same time has produced many plants with superior qualities. When plants are propagated from seed, the progeny is extremely variable, and many of the seedlings lack the superior qualities of the parents. This is one of the most challenging and rewarding groups of plants available to rock gardeners.



Saxifraga species and hybrids
Saxifragaceae—Saxifrage Family
Rockfoils

Description: Plants perennial, forming 1 to many dense rosettes. Leaves linear to spatulate, thick, with conspicuous lime encrustations along the margins. The tiny, 5-petaled flowers are formed profusely on flowering stems from 2" to 2' long. The flower color is usually white, creamy, or pink with darker dots on the petals.

Landscape Description:

FLOWERS

Color: white to pink
Time of Bloom: L-May-M-June
Showiness: showy

FOLIAGE

Color: gray green
Texture: fine or medium
Quality: excellent

Site Requirements: some protection from full sun, rocky, well-drained soil

Propagation: division, rooting rosettes

Comments: The many species and hybrids of this group are some of the easiest of the true alpines to grow. These plants are naturally found in rock crevices where they look and grow their best.



Saxifraga sp.
Euaizoonia Section
Encrusted Rockfoil

Description: Plants perennial, evergreen, 3"-6" tall. Leaves variable, linear or finely divided into 3 to 5 linear segments. The 5-petaled flowers, ½"-¾" across, come in a variety of colors from pure white to red.

Landscape Description:

FLOWERS

Color: white to red
Time of Bloom: L-April-M-May
Showiness: good

FOLIAGE

Color: dark green
Texture: fine
Quality: excellent

Site Requirements: a cool site in partial shade with a rich, moist, well-drained soil

Propagation: division (after flowering), seed

Comments: Plants tend to die out in patches, especially during hot, muggy weather. An annual topdressing gently worked into the center of the plant will help eliminate this problem. True species are seldom grown because of the numerous hybrids that are available in the trade.



Saxifraga sp.
Dactyloides Section
Mossy Rockfoils

Description: Plants perennial, glabrous, mound-forming, to 6" tall. Stem mostly unbranched, producing basal shoots late in the season which overwinter. Leaves alternate, 1½"-2" long, spatulate to oblanceolate, slightly toothed. The bright yellow flowers are in terminal cymes. Petals 5, lanceolate, acute. Calyx 5-parted.

Landscape Description:

FLOWERS

Color: lemon yellow
Time of Bloom: L-June-L-July
Showiness: good

FOLIAGE

Color: yellow green
Texture: medium
Quality: excellent

Site Requirements: full sun, any well-drained soil

Propagation: seeds, division, stem cuttings

Comments: a mound-forming stonecrop that is easily grown, but will not spread or become too invasive.



Sedum kamschaticum subsp.
ellacombianum Stonecrop
Crassulaceae—Orpine Family



Sempervivum arachnoideum
Crassulaceae–Orpine Family

Cobweb Houseleek

Description: Plants perennial, succulent, spreading by offsets. Leaves in dense basal rosettes, ½”–¾” wide, oblong to obovate, tips connected by cobwebby strands. Flowers on leafy stems, 3”–5” tall, in compact cymes. Flowers 9–12-merous, bright red, ½”–1” wide.

Landscape Description:

FLOWERS

Color: red

Time of Bloom: M-June–E-July

Showiness: good

FOLIAGE

Color: silvery green

Texture: fine

Quality: excellent

Site Requirements: full sun, well-drained soil, tolerant of heat and dry soils

Propagation: division

Comments: Though this plant rarely flowers, it is worth growing for the attractive rosettes, which are covered with spider-web-like strands. Easily grown when given maximum sun and a well-drained soil. The many other species and variants of *Sempervivum* have the same cultural requirements and may be used for their various foliage colors and textures.



Silene schafta
Caryophyllaceae–Pink Family

Moss Campion

Description: Plants perennial, mound-forming, 8”–10” tall. Stems erect to decumbent, densely puberulent, slightly branched. Leaves opposite, ¾”–1” long, obovate, sessile. Petals 5; long clawed, limb ¾” long, broadly obovate, emarginate, with 2 scales at the base; magenta. Calyx cylindrical, to 1” long, 5 toothed, distinctly 10-nerved.

Landscape Description:

FLOWERS

Color: magenta

Time of Bloom: E-August–E-September

Showiness: good

FOLIAGE

Color: green

Texture: fine

Quality: excellent

Site Requirements: full sun or light shade, well-drained soil

Propagation: seeds, division, stem cuttings

Comments: Easily grown and especially useful for its late season of bloom.



Thalictrum kiusianum
Ranunculaceae–Crowfoot Family

Description: Plants perennial, glabrous, stoloniferous, to 5” tall. Leaves alternate, mostly basal; basal leaves biternate, leaflets broadly ovate, 3–5 toothed, oblique; cauline leaves few, ternate, smaller than the basal leaves. Flowers are in erect, minutely bracted panicles. Petals absent. Stamens many, filaments clavate, lilac to rose purple. Pistils 3–15, inflated and winged, same color as the stamens. The stamens and pistils are the conspicuous part of the flower.

Landscape Description:

FLOWERS

Color: lilac-rose purple

Time of Bloom: L-June–L-August

Showiness: good

FOLIAGE

Color: green

Texture: fine

Quality: good

Site Requirements: partial shade, moist, fertile, well-drained soil

Propagation: division

Comments: A tiny but choice rock garden plant that should be planted where it can be easily observed. The conspicuous part of the tiny flowers are the inflated filaments of the numerous stamens. Because the plants leaf out late in the spring, their location should be marked so that they are not disturbed by early spring cultivation.



Thymus praecox ssp. arcticus
Labiatae–Mint Family

Mother-of-Thyme

Description: Plants perennial, mat-forming, evergreen, to 4” tall. Stems square, pubescent on 2 opposite sides, vegetative stems prostrate, rooting at the nodes, reproductive stems erect. Leaves opposite, ¼” long. Flowers in bracted whorls, pungent scented. Corolla bilabiate, ¼” long, white to purple depending on cultivar. Calyx tube 10-nerved.

Landscape Description:

FLOWERS

Color: purple to white

Time of Bloom: E-June–M-July

Showiness: showy

FOLIAGE

Color: green

Texture: fine

Quality: excellent

Site Requirements: full sun, well-drained soil

Propagation: division

Comments: A good ground cover, but too rampant to be used near other choice alpine. Best used in a large rock garden or between paving stones where it can be contained naturally. Large mats require constant maintenance to keep weed-free. Commonly sold as *T. serpyllum*.

Shrubs in the Rock Garden

Shrubs are an essential component of the rock garden and serve not only as a background planting, but as an integral part of the basic design. Careful selection and placement of shrubs adds variety and contrast to any rock garden. Because of their importance and function in the overall design of the garden, shrubs should be placed to accent and complement the rock work. Shrubs can also greatly improve the winter effect of an otherwise drab garden. Dwarf or slow-growing shrubs are the best types to use in a rock garden. They conform to the scale of the garden better than normal shrubs and, if properly selected, will not require pruning to maintain their

dwarf form. The many different types of dwarf shrubs vary greatly in size and growth habit. Some are so small and slow growing that they can be used in dish gardens, but others, although dwarf compared with their parents, are much too large to be included in the rock garden. Pay close attention to growth habit and growth rate when selecting dwarf shrubs. Some deciduous and broadleaved evergreen shrubs can also be planted effectively in the rock garden.

The following list of commonly grown dwarf shrubs should serve as a good introduction to this fascinating group.

Abies balsamea hudsonia—Hudson Balsam Fir
Arctostaphylos uva-ursi—Bearberry
Calluna vulgaris—Heather
Chamaecyparis obtusa 'Kosteri'—Koster Hinoki False Cypress
Chamaecyparis obtusa 'Nana'—Dwarf Hinoki False Cypress
Chamaecyparis pisifera 'Filifera Nana'—Dwarf Thread False Cypress
Chamaecyparis pisifera 'Squarrosa Minima'—Dwarf Moss False Cypress
Cotoneaster dammeri—Bearberry Contoneaster
Daphne cneorum—Rose Daphne
Daphne mezereum—February Daphne
Erica carnea—Heath
Juniperus communis 'Compressa'—Dwarf Common Juniper
Juniperus chinensis var. *procumbens* 'Nana'—Dwarf Japanese Juniper
Paxistima canbyi—Canby Paxistima
Picea abies 'Nidiformis'—Birds Nest Spruce
Picea glauca 'Conica'—Dwarf Alberta Spruce
Pinus mugo 'Gnome'—Gnome Mugo Pine
Pinus strobus 'Nana'—Dwarf Eastern White Pine
Teucrium chamaedrys—Germander
Tsuga canadensis 'Cole'—Dwarf Canadian Hemlock

Maintenance

Rock gardens require neither negligible nor excessive maintenance. The attention they need is similar to what other gardens require, although some modification of general garden maintenance is recommended for the most satisfactory results.

Weeding

Of all the gardening chores, controlling weeds is by far the most important. Most plants used in the rock garden are small and unable to compete with the more vigorous weeds. But weed control need not be an arduous task if done on a regular basis. The key is to remove weeds periodically before they have a chance to become established. Working for a few minutes several times a week will give better results than weeding thoroughly just once a week. Less frequent weeding allows for invasion by the persistent perennial weeds like dandelion. Once these weeds get a foothold in or near the crown of the smaller rock garden plants, they are nearly impossible to eradicate without destroying the prized specimen. During weeding, gently lift or separate the crown of the rock garden plant and remove any weed seedlings while they are still small.

Because of the nature of a rock garden, weeding is a job best accomplished by hand. Many of the normal garden tools are ineffective because of the relative size of both the garden and its inhabitants. Chemical weed killers are not recommended because they are likely to damage more rock garden plants than weeds.

The thought of hand weeding should not be a deterrent to

starting a rock garden. It provides an opportunity to keep a close eye on the many intriguing plants and to enjoy the small daily pleasures associated with rock gardening. Recognizing the self-sown seedlings of various rock garden plants is another advantage of hand weeding. Allowing plants to self-sow in the garden is a simple and convenient method of obtaining new plants. However, not all self-sown seedlings are desirable. Seedlings that will eventually crowd out existing plants should be transplanted or removed entirely.

Replacing plants

Another important and often ignored aspect of rock garden maintenance is the replacement of plants. Naturally, plants won't live forever, and each year space will be available for fresh plant materials. Some rock garden plants are relatively short-lived, particularly alpinists that are adapted to short, cool growing seasons. Plants will be lost because of other causes, too, but regardless of the cause, the need to replace a few plants each year should not be overlooked. Spring is the best time of year to replace plants because they have the maximum time to become established before the onset of winter.

Fertilizing

One of the many advantages of rock gardening is the relatively low demand for fertilizer. Many of the plants are native to rocky places and have adapted to low soil fertility. They actually perform better without supplemental fertilizer. Some plants, particularly those that are native to richer

lowland regions, will respond well to fertilizer. The difficulty lies in deciding which plants should be fertilized. A rule of thumb, which is contrary to other types of gardening, is, when in doubt don't fertilize. A plant that continues to grow and flower consistently is best left alone. However, if the plant loses vigor or the foliage becomes chlorotic, an application of fertilizer may be the answer. Some older plants that don't respond to fertilization can be rejuvenated by dividing or pruning.

It is perfectly acceptable to use either organic or commercially prepared inorganic fertilizers. If a commercial fertilizer is selected, one of the water-soluble kinds is recommended because it can easily be applied to selected plants without being injurious. In using inorganic fertilizers, follow the directions on the back of the container, and do not exceed the manufacturer's recommended rate. All fertilizers should be applied during spring or early summer. If fertilizer is applied after that, it encourages soft, succulent growth that will not harden off before winter. Plants in this condition, though normally winter-hardy, have a much higher incidence of winter injury and death.

Controlling pests

Pests are a problem which must be dealt with in any garden. Generally, rock gardens are afflicted with few pests, but some pest-control measures will be necessary. Most common and troublesome are aphids, slugs, and spider mites, although other minor pests are also likely to venture into the garden. A helpful

reference for identifying and controlling specific pests is Cornell Miscellaneous Bulletin 74, *A Guide to Safe Pest Control Around the Home*. This bulletin is available for \$2.50 from a county Cooperative Extension office or Distribution Center, 7 Research Park, Cornell University, Ithaca, NY 14850.

Other chores

Other maintenance chores associated with rock gardens are based on common gardening practices typical of any garden. Garden tasks that should be performed annually are clean-up, pruning, irrigation, and mulching.

Clean-up is usually necessary in both spring and fall to tidy up the garden. Remove fallen leaves, twigs, dead plants, and any other debris. In the spring, check plants for frost heaving; any plants that have been raised should be pressed firmly back into place as soon as the ground is soft.

Pruning is not a very demanding job in a rock garden because most plants are selected for their small size. Promptly remove old flowering stems unless seeds are to be collected. Plants with long, trailing stems, like *Arabis* and *Aurinia*, need to be pruned back after flowering to help them maintain a neat, compact growth habit. Other plants like *Thymus* and *Mazus*, which are vigorous spreaders, will need annual pruning to help them stay within bounds. Many others will not require pruning.

Rock garden plants require ample moisture, and irrigation may be necessary during the hot, dry summer months. A thorough soaking once a week is much better than a daily light sprinkling. Shallow watering encourages shallow rooting and makes the plants more prone to drought.

Two distinct types of mulches are used in the rock garden. A winter mulch, consisting of pine boughs, straw, or salt hay, will

protect the plants from damage caused by alternate freezing and thawing. This protection is particularly useful in areas that do not maintain a continual snow cover. Apply this type of mulch in early winter when the ground is frozen, and remove it gradually in the spring. Leaves do not make good mulch because they form a mat that restricts air circulation and blocks out light. Summer mulch is composed of small stone chips, and it is used to inhibit weeds, conserve moisture, reduce splashing mud, and provide sharp surface drainage. Stone chips can also help reduce erosion on slopes. The type of stone chips selected should be compatible with the rocks used in the overall garden construction. Stone chips can be applied to the entire surface of the garden or confined to the area around individual specimens. The thickness of the mulch does not need to exceed one-half inch.

Propagation

Nearly every rock gardener will eventually want to propagate a few plants. Most rock garden plants can be easily propagated by following one of three basic techniques: seeds, stem cuttings, or division.

Seed Propagation

Growing plants from seed is an enjoyable and inexpensive way of obtaining new plants. Large numbers of plants can be produced by this method, but considerable time and effort is required to nurse the seedlings to a usable size. Many seeds will germinate under a wide range of cultural

conditions; others demand an exact combination of environmental factors. Several sources containing detailed instructions for seed propagation are listed under "Selected References."

If plants are to be propagated from seed, it is important that they reproduce true to type. Most hybrids and cultivars, such as those of the genus *Saxifraga* or *Dianthus*, will not reproduce true to type from seed and, therefore, should be propagated by other methods.

Seed Collection and Storage. Rock garden seeds are generally not sold by large commercial producers. Most seeds available

today are collected by the many enthusiastic amateur rock gardeners. Members of the American Rock Garden Society conduct an annual seed exchange at which seeds from nearly 4,000 species of rock garden plants are traded. Persons interested in seed propagation will eventually want to collect seeds from their own garden.

Seed collection is a simple matter, but keep in mind a few important considerations. Allow the seeds to mature fully before collecting them. Seeds are mature when they can be easily removed from their pods or other protective cases. The degree of

difficulty in seed collecting varies with the species. Some plants have relatively large, conspicuous seeds, but other plants produce seeds that are as fine as dust. The length of time during which seeds can be successfully harvested ranges from a few days to several weeks, depending on the species. When collecting seed pods, separate the seeds from the chaff and other dried flower parts to make sure that viable seeds exist. Collect only dry seed, and place each species in a separate, labeled envelope.

Proper storage will increase the length of seed viability. Seeds stored for any extended period should be placed in a cool, dry location. The refrigerator is an excellent place to store seeds. All seeds should be thoroughly dry before storing to prevent any loss caused by mold or mildew. Seeds stored in the refrigerator should be placed in a plastic bag to prevent total dehydration in this extremely dry atmosphere. If these basic principles are followed most seeds can be safely stored throughout the winter without an appreciable decrease in germination.

Stem Cuttings

Many rock garden plants can be successfully propagated by stem cuttings. This form of asexual propagation produces plants that are identical to the parent plant. Stem cutting is especially desirable when propagating hybrids or cultivars that are selected for superior qualities but don't produce seeds that are true to type. Specific directions for this method of propagation vary according to the tremendous diversity of plant materials used in the rock garden. However, many rock garden plants can be propagated by following a few basic principles.

Spring or early summer is the

best time of year to take cuttings from most plants. The cutting should be made from the current season's growth, preferably from stems of intermediate maturity, which are the easiest to root. Avoid the soft, succulent growth of early spring because it tends to wilt rapidly when cut. On the other hand, stems that are allowed to mature fully often become hard or woody and are quite difficult to root. The specific length of the cutting varies with the type of plant, but most cuttings should not exceed 3 inches long. Make all cuts with a sharp knife or pruning shears to minimize the damage to the mother plant.

Successful rooting depends on preventing moisture loss in the cutting from the time the cut is made until new roots are produced. Protect the cuttings from sun and wind, and insert them into the rooting medium as quickly as possible. Any of several different rooting mediums can be used with equal success. A good medium must be sterile, well drained, and at the same time have a high moisture-holding capacity. Sand, perlite, or vermiculite may be mixed with an equal amount of peat moss to provide a good medium. Almost any type of container may be used as long as it is clean and well drained.

Rooting hormone may be used effectively on most rock garden plants to strengthen root growth and decrease rooting time. The base of the cutting should be dipped into the rooting hormone just before the cutting is inserted in the medium. All cuttings should be placed firmly in the medium and then watered thoroughly. Place the cuttings in a high-humidity environment, or cover the container with a clear plastic bag. Remove the plastic bag periodically to provide air circulation and reduce the risk of rotting.

Cuttings should root in 2 to 8

weeks, the length of time depending on the type of plant. When a healthy root system has developed, the cuttings should be transplanted to small pots or to a protected area of the garden.

Division

Many of the plants that cannot be propagated by seed or stem cuttings can be increased through division. The best time to divide a plant is in early spring or late autumn when the plant is not actively growing. Dig up the plant, and divide it into sections by carefully pulling or cutting it apart. Be sure that each section contains both roots and shoots. Discard any old or diseased sections. Replant the healthy sections and keep them watered until new growth begins.

Sources of Rock Garden Plants

Two basic sources from which rock garden plants can be obtained are the American Rock Garden Society and specialized mail order nurseries. The American Rock Garden Society has an annual seed exchange at which seeds from nearly 4,000 different species are traded. Participation in the seed exchange is limited to members. For further information, contact the Secretary, American Rock Garden Society, Box 183, Hales Corners, Wisconsin 53130.

The following is a partial listing of mail order nurseries that specialize in rock garden plants. It is provided as a convenience to the reader and does not constitute an endorsement.

Alpenflora Gardens
17985 40th Avenue
Surrey, B.C. Canada

Alpenglow Gardens
13328 King George Highway
Surrey, B.C. Canada

Samuel F. Bridge Jr.*
437 North Street
Greenwich, Connecticut 06830

Greer Gardens
Dept. R
1280 Goodpasture Island Road
Eugene, Oregon 97401

J.A. Mars of Haslemere
Haslemere, Surrey,
GU27 - 31DW, England

Miniature Gardens
Box 757, Stony Plain,
Alberta, Canada T0E2G0

Oliver Nurseries*
1159 Bronson Road
Fairchild, Connecticut 06430

Palette Gardens
26 West Zion Hill Road
Quakertown, Pennsylvania 18951

Rakestraw's Perennial Gardens
G. 3904 S. Term Street
Burton, Michigan

The Rock Garden
Litchfield, Maine 04350

Siskiyou Rare Plant Nursery
2825 Cummings Road
Medford, Oregon 97501

Stonehurst Rare Plants†
1 Stonehurst Court
Pomona, New York 10970

Watnong Nursery*
Morris Plains, New Jersey 07950

The Wild Garden
Box 487
Bothell, Washington 98011

Woodland Rockery
6210 Klam Road
Otter Lake, Michigan 48464

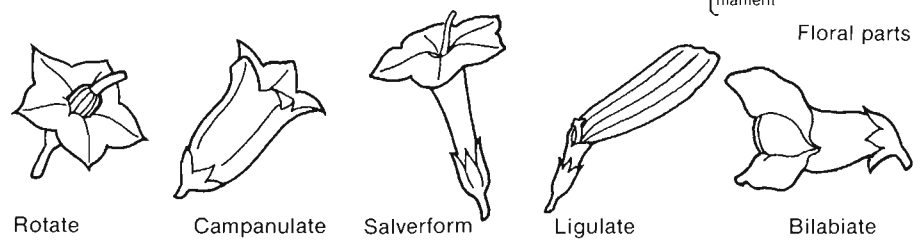
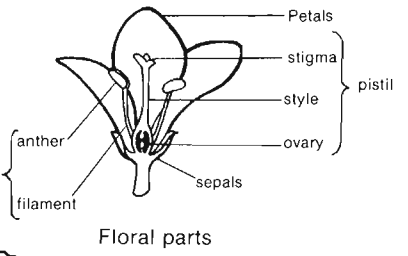
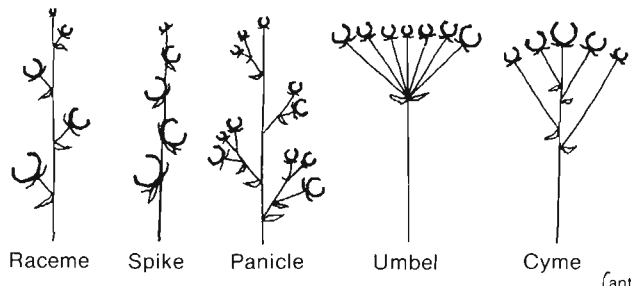
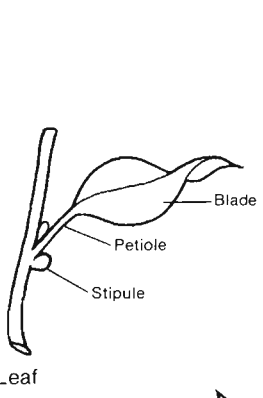
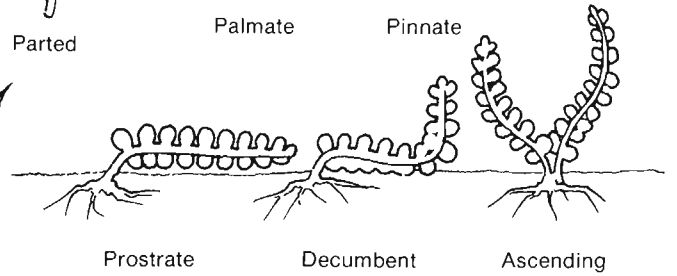
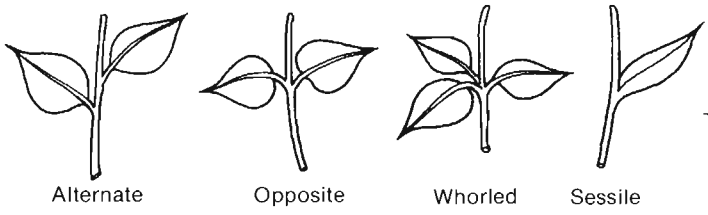
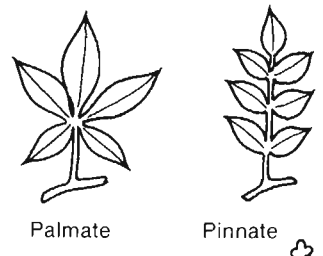
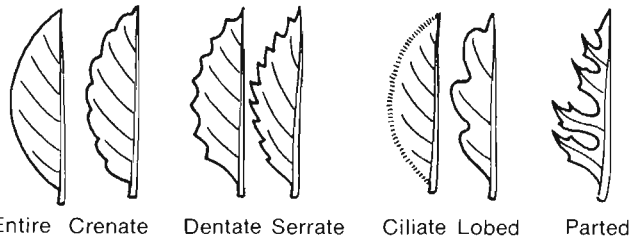
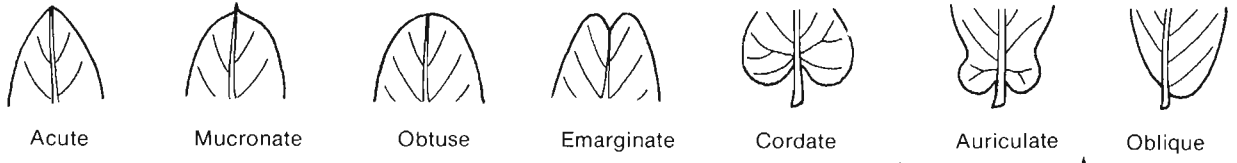
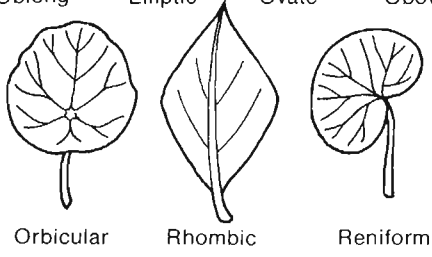
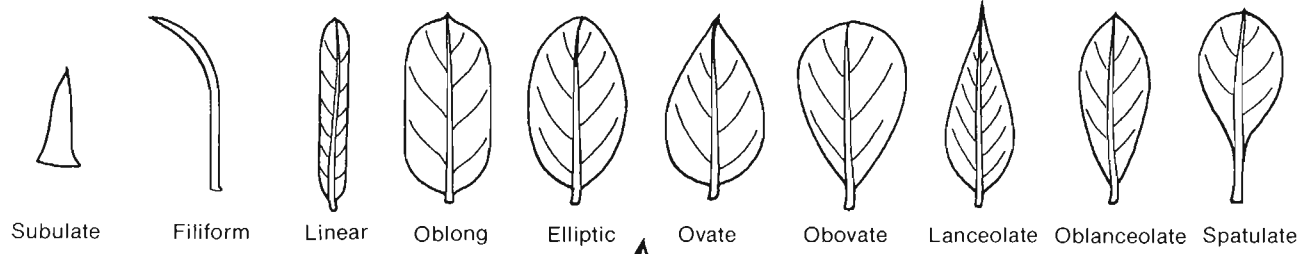
†Dwarf and rare conifers only.
*Plants for sale only at nursery.

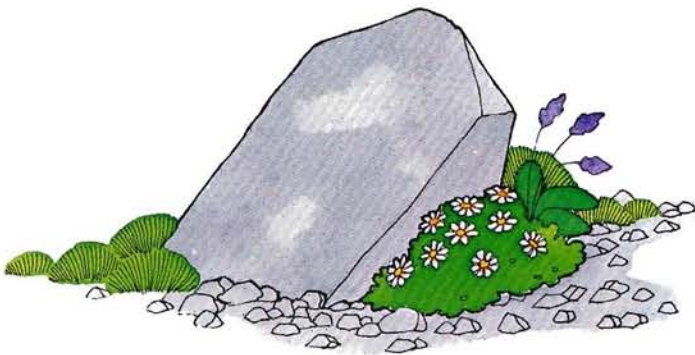
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Glossary

- Alpine plant**—plants native to the zone between the treeline and permanent snowline
- Batter**—backward slope of a wall
- Bearded**—with hair-like appendages
- Bract**—a modified leaf near a flower
- Caespitose**—growing in small tufts
- Calyx**—structure formed by the fusion of sepals
- Cauline**—pertaining to the stem
- Claw**—the narrowed base of some petals
- Connate**—fusion of like structures
- Corolla**—structure formed by the fusion of petals
- Dioecious**—male and female flowers borne on separate plants
- Dry wall**—a stone wall without mortar
- Encrusted**—coated with a hard, limy crust on the edges
- Ensiform**—sword-shape
- Epicalyx scales**—bracts subtending the calyx, characteristics of *Dianthus*
- Equitant**—leaves folded lengthwise and in two ranks
- Falls**—outer whorl of floral parts in an iris flower
- Farinose**—coated with a mealy substance
- Foliage texture**—the size of the leaf with respect to the plant; rated fine, medium, or coarse
- Foliage quality**—a measure of the ornamental value of the foliage; rated excellent, good, fair, poor
- Glabrous**—smooth, without hairs
- Glaucous**—covered with a waxy bloom that easily rubs off
- Head**—a dense cluster of flowers or fruit
- Inflorescence**—cluster of flowers
- Involucre**—a whorl of bracts subtending a flower or an inflorescence
- Moraine**—a site composed of a deep layer of rock particles and a little organic matter with an underground supply of running water
- Outcrop**—a section of underlying rock that protrudes through the earth's surface in several locations
- Perennial**—a plant that lives more than two years
- Pistillate**—only female flower parts
- Pubescent**—covered with short soft hairs
- Revolute**—with the margins rolled under
- Rhizomatous**—spreading by rhizomes
- Saxatile**—growing among rocks
- Scape**—a flowering stem without leaves
- Scarious**—thin, dry, and membranous
- Scree**—a site consisting of rock fragments and a small amount of organic matter
- Showiness**—a measure of the attractiveness and appeal of the flowers; rated very showy, showy, good, fair, poor
- Silicle**—a dry fruit of the Mustard family which is not more than twice as long as wide
- Silique**—a dry fruit of the Mustard family which is several times longer than wide
- Stoloniferous**—a plant which spreads by above ground runners
- Strata**—the distinct layers in sedimentary rock
- Stratified rock**—sedimentary rock that is formed in layers
- Ternate**—grouped in threes
- Tomentose**—densely covered with a mat of interangled hairs
- Unstratified rock**—rocks without distinct layers





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