



DWARF CONIFERS

WHY GROW MINIATURE CONIFERS?

Many people are fascinated with dwarf or miniature plants. Just like orchids, dahlias or other specialty plants, dwarf and miniature plants can become a collectors' item. In the landscape these small plants can be used by themselves in special beds, troughs, raised beds or containers. Dwarf conifers can also be used to face taller plants, be mixed with larger shrubs in shrub beds, and be used as edgings or specimens in small spaces. They can be used when designing gardens for small yards, condominium gardens, Japanese gardens and rock gardens. They combine well with heathers and alpiners. Conifers provide year round interest and color and can serve in both formal and informal setting. They can be used in place of statuary. Conifers are friendly to wildlife, providing protection and food to birds, squirrels, and other animals.

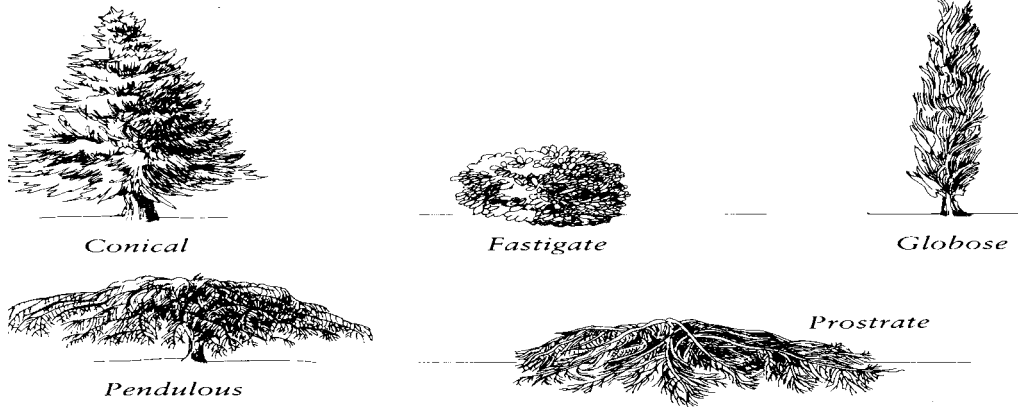
CONIFERS

- Conifers are shrubs or trees that bear wooden cones in a variety of colors such as blues, reds, and browns.
- Most have needle-like leaves that are retained all year. The *Larix* (Larch) is an exception.
- Especially at a young stage, many conifers are cone-shaped and may not show the color or all the characteristics of a more mature plant.

DWARF CONIFERS

- Dwarf conifer is a relative term, but it is a plant that doesn't grow to the normal size of the species or takes many years to do so.
- They are slow growing and generally 1/20th the size of the species.
- Semi-dwarf might be 1/10th the size of species.
- Most dwarf or semi-dwarf conifers will be less than 6 feet in 10 years.
- If they outgrow their original planting spot, they will need to be re-located to another area.
- They may have different foliage and color than the parent.

GROWTH HABITS OF CONIFERS



COMMON NAMES FOR HARDY CONIFERS

<i>Abies</i>	Fir
<i>Chamaecyparis</i>	False Cypress
<i>Juniperus</i>	Juniper
<i>Picea</i>	Spruce
<i>Taxus</i>	Yew
<i>Thuja</i>	Arborvitae
<i>Tsuga</i>	Hemlock
<i>Pinus</i>	Pine

WHAT CAUSES DWARF CONIFERS

1. Environment - The climate or soil conditions are so severe that over time the plant develops dwarf characteristics. They often retain these dwarf characteristics in cultivation, but may grow faster and larger than in the wild.
2. Seedling mutations - These are chance genetic differences (a change in gene arrangements) that change a seedling's growth rate, shape, color, leaf shape or form from that of the parent plant. Usually seed mutations are sterile.
3. Bud mutations or sports - Here a bud appears to change from the norm. It may have a different color, growth rate or foliage from the parent plant.
4. Witches brooms - Multiple side shoots forming a cluster of short erect shoots with small leaves is called witches brooming. This condition can be caused by insect, disease or environmental conditions. Witches brooming is a source for many cultivars because of dwarfing features.
5. Grafting - Many plants are produced by taking scions and grafting them onto dwarf rootstock. (Scions are cuttings taken from older plants for grafting).
6. Cultivariants – In this situation a new cultivar is formed. If scion material is taken from a side branch where lateral growth is pronounced, a prostrate cultivar results. The reason this scion allows lateral growth to form is because it lacks hormones that encourage vertical growth.
7. Standard - A rootstock is trained for vertical growth. At grafting time its foliage is removed and scion material is grafted in place of its foliage. The standard rootstock for dwarf conifers is one or more feet high.

SITE AND SOIL CONDITIONS

- Most dwarf conifers like sunlight. *Larix* (Larch), *Tsuga* (Hemlock) and some *Chamaecyparis* (False cypress) do better in light shade. Light preferences for many dwarf conifers are given in the chart at the end of this publication.
- Soil should be well drained. Raised beds work well.
- Amend existing soil with peat, perlite and or compost. This is best done to a large area rather than just the planting hole. However avoid enriching soils to a great extent. Lean soils encourage the dwarf characteristics of the conifer.
- Locate plants that like the same soil conditions, such as pH levels 4.5 or 6.0, in the same area.
- Find the best microclimate - some dwarf conifers may be burned or dried out by wind or sun, etc. Know the conditions that best suit the conifer you are planting and use this information to meet the needs of the particular plant.

FERTILIZER

- 1) Since the purpose of having dwarf conifers is their small stature and foliage, it is best to use fertilizer sparingly. A tablespoon of 5-10-10 mixed into the soil at planting time is enough to get a plant established. After plants are doing well, mulches such as compost will furnish sufficient nutrients.
 - Organic fertilizers include bone meal 3-15-0, cotton seed meal 7-2-1.
 - Another choice is Osmocote, an encapsulated fertilizer, in 14-14-14 or 18-16-12. These fertilizers can be used in early spring and provide enough nutrients to last through most growing seasons.
 - Apply fertilizers at the dripline and water in well. Keep fertilizers away from the trunks of the plants.
- 2) Watch for chlorosis (yellowing of the leaves). This often indicates that the soil is not acidic enough. The pH range should be 4.5 to 6.0 for most conifers. There are several materials that adjust pH. Apply Ferrous sulphate or Sulfur in the root area, about two inches away from the trunks to slightly beyond the dripline. One half to 3/4 cup sprinkled around each plant once a year is sufficient. Iron sulfate along with small amounts of other nutrients such as zinc are available in liquid form. Read the directions carefully when using these products.

PLANTING OR TRANSPLANTING

- Rid planting area of weeds, especially grass.
- Loosen soil on the sides of planting holes.
- Unravel roots that are circling. Cut circling roots if you can't straighten them out.
- Free the root system by gently pulling roots out of the rootball.
- Place main roots spreading downward and outward. Make sure some of the roots make contact with the new soil.

- Dig the planting hole four times the width of container or rootball, but not much deeper. Loose soil at the bottom of the planting hole may allow the plant to sink too deep. Studies show that it is important to place the root flare of trees and shrubs at ground level.
- Before relocating a larger, well-established plant, root prune in the spring and/or in midsummer. (See explanation in pruning section.) This forces the plant to send out multiple rootlets at the point where the established roots were cut. It also forms a more compact rootball that makes transplanting less stressful on the conifer.

MAINTENANCE

- Conifers need adequate water. Drip irrigation is preferred.
- Water approximately one inch per week for the first year, but don't allow the plant to stand in water. Mist foliage if weather is hot. Do not wait for the plant to show stress before taking action.
- Mulch the soil with two to three inches of bark, compost or shredded pine needles. Keep mulch one to three inches away from the trunk where mice may hide and feed or accumulated moisture may cause rotting of the bark. It may only be possible to mulch the ground close to the edge of small mounding or prostrate conifers.
- Renew mulch yearly to control weeds, conserve moisture and keep the soil cool.
- Transplant if the plant is being damaged by wind or sunburn or if it has outgrown its site. When transplanting, root prune several months ahead if possible. Root pruning also slows undesired growth.

PRUNING

Pines can be controlled in size and shape by pruning the new candles. A cut halfway through the candle will promote bushy growth. Little new growth will occur until the following year if the candles are completely cut or snapped off.

Spruce or **Fir** can be trimmed just in front of the fat growth buds. These buds will start new branches the following year. If more severe pruning is done, prune to a lateral branch.

Yews and **Hemlocks** have latent growth buds on most of their branches and can be pruned or sheared throughout the year, but preferably in the spring.

Arborvitae and **Junipers** can be controlled by thinning new growth almost to the point of origin. Make cuts just above side shoots that are growing in the desired direction. Prune from February to April.

Spruce require almost no pruning. To create denser growth, cut new growth back about halfway.

Larch rarely need pruning. Remove dead branches and prune undesired growth.

Pruning tips:

- Prune to the normal shape of the plant - conical, globose, fastigate, pendulous or prostrate.
- Prune to enhance growth habit. Prune out errant growth. (See illustration on page 2).

- Prune regularly – no more than the current growth each year.
- Root prune to retard growth. Root pruning is done by inserting a shovel or planting spade to the depth of the blade. The dripline is a good place to do root pruning. Cut the roots at alternate intervals over a two-year period.

PROBLEMS

- 1) Insects - watch for aphids, spider mites and adelgids.
 - a) Spray with a hard stream of water to rid plant of insects, dust or dead growth. Spraying every 5 to 10 days may break the growth cycle of insects such as aphids and spider mites.
 - b) Use insecticides such as Safers Insecticidal Soap. Use any insecticidal soap according to label directions.
 - c) If this doesn't correct problems, contact Master Gardeners or a local garden center.
- 2) Snow - if a snowfall is wet or heavy, brush off branches carefully. If you have a plant whose branches separate extensively with snow or ice, wrap the branches with twine in late fall
- 3) Needle drop - loss of needles on the inner branches in the fall is natural.
 - a) Clean out old fallen needles in the spring. A sharp spray with a garden hose works well.
 - b) Cut out dead wood.

DESIGN

- 1) Create a picture You might start by collecting pictures from books and gardening magazines or by visiting gardens that feature dwarf conifers. Make a simple plan of your ideas on paper. It is easier and less expensive to move plants around on paper than out in the garden.
- 2) Scale Consider how the plants will relate to other plants and the house. Will the house look out of place? Will the beds be too small? Will dwarf conifers need a background such as fence or hedge?
- 3) Viewing Where will plantings be viewed from? Inside? Along a walk or patio? In a raised bed, large container, trough, gentle slope or rock garden? Will the plants be seen from more than one side?
- 4) Placement Start with a dominant specimen. Place taller or faster growing plants in the back or middle. Many plants look better in groups of 3, 5 or 7. Place smaller plants so they may be examined up close. Have a suitable background for the viewing of plants. A dark green hedge of arborvitae or yew works well. An especially nice specimen will be shown to advantage if placed in front of a grouping of boulders. Consider plant needs for similar soils, water and sun when grouping plants. Plants may need to be moved because of poor performance or they may outgrow the area.

- 5) Uses Will the area be used as an area to read, paint, or relax? Or will it be used where physical activities will be taking place? Other uses might be dining, visiting with friends, etc. Different uses may dictate how a design is put into the landscape.

RELATIVE GROWTH RATE/SIZE GUIDE

Miniature Category:

Growth less than one inch per year
 Height in 10 years: 6 to 10 inches
 Ultimate height and/or spread is less than 3 feet

Dwarf Category:

Growth rate between 1 and 6 inches per year
 Height in 10 years: 1 to 5 feet
 Ultimate height and/or spread is 10 to 25 feet

Intermediate Category:

Growth rate 6 to 12 inches per year
 Height in 10 years: 5 to 15 feet
 Ultimate height is 33 to 50 feet

Large Category:

Growth rate 12 inches per year
 Height in 10 years: 10 to 25 feet
 Ultimate height is over 60 feet

RECOMMENDED PLANT LIST

<i>Abies balsamea</i> 'Nana'	Balsam fir	Zone 3
Partial shade. Dense globe. Dark green needles. 1 to 3" yearly growth. 12"x12" in 10 years.		
<i>Abies concolor</i> 'Compacta'	White fir	Zone 4
Full sun. Irregular form. Dense gray foliage. 1 to 3" yearly growth.		
<i>Abies koreana</i> "Horstmann's Silberlocke"	Korean fir	Zone 5
Full sun. Silver-backed needles curve upward giving it a silver appearance. Small tree.		
<i>Abies lasiocarpa</i> 'Glauca Compacta'	Subalpine fir	Zone 4/5
Full sun. Pyramidal form. Soft green needles. 1½ to 3" yearly growth.		
<i>Abies lasiocarpa</i> 'V. Arizona Compacta'	Subalpine fir	Zone 5
Full sun. Very blue foliage. Compact conical habit. 1½ to 3" yearly growth.		
<i>Cham. lawsoniana</i> 'Green Globe'	Lawson false cypress	Zone 5
Partial shade. Dark green needles. ½ to 1" yearly growth.		
<i>Cham. obtusa</i> 'Elf'	Hinoki false cypress	Zone 5
Partial shade. Emerald green globe. ½ to 1" yearly growth.		

Cham. obtusa 'Golden Sprite' Partial shade. Miniature, compact bun. Golden foliage. ¼" to ½" yearly growth.	Hinoki false cypress	Zone 5
Cham. obtusa 'Kosteri' Partial shade. Bluntly conical. Green foliage. 1 to 3" yearly growth, 30"x3" in 10 years.	Hinoki false cypress	Zone 5
Cham. obtusa 'Juniperoides' Partial shade. Dark green mound. 6" plant in 20 years.	Hinoki false cypress	Zone 5
Cham. obtusa 'Nana' Partial shade. Globose form. Dark green, fan shaped leaves. 1" yearly growth, 10" in 10 years.	Hinoki false cypress	Zone 5
Cham. Obtusa 'Nana Lutea' Partial shade. Broadly pyramidal. Cup-shaped gold foliage. 1" to 3" yearly growth.	Hinoki false cypress	Zone 5
Cham. piserera 'Snow' Partial shade. Small ball with gray-green foliage, white branch tips. 1 to 3" yearly growth.	Sawara cypress	Zone 3
Cham thyoides 'Top Point' Full sun. Small green cone. 1 to 3" yearly growth.	Atlantic white cedar	Zone 5
Juniperus communis 'Gold Cone' Full sun. Upright form, golden foliage. 4" yearly growth.	Juniper	Zone 5
Juniperus communis 'Berkshire' Full sun. Tiny, silvery-blue needles. 12"x12" in 15 years.	Juniper	Zone 3
Larix laricina 'Newport Beauty # 9 or #17' Partial shade. Globose form, soft blue-green needles, turns yellow in fall. 2 to 4" yearly growth.	Larch	Zone 4
Picea abies 'Humilis' Full sun. Grayish-green needles. Bun shaped. ½ to 1" yearly growth.	Norway spruce	Zone 3
Picea abies 'Little Gem' Full sun. Round mound. Dark-green needles with brown buds. ½ to 1" yearly growth.	Norway spruce	Zone 3
Picea abies 'St James' Full sun. Dwarf cushion, dark-green needles.	Norway spruce	Zone 3
Picea glauca 'Alberta Globe' Full sun. Round Alberta spruce. ¼ to ½" yearly growth, 10"x10" in 10 years.	White spruce	Zone 3
Picea glauca 'Cecilia' Full sun. Very dwarf dense globe. Diminutive blue-green foliage.	White spruce	Zone 2
Picea glauca 'Echiniformis' Full sun. Dense pincushion. Grayish-green foliage. 1'x1' in 10 years.	White spruce	Zone 3
Picea glauca 'Gnome' Full sun. Small version of the Alberta spruce. ½ to 1" yearly growth. 20"x10" in 10 years.	White spruce	Zone 3

<i>Picea omorika</i> 'Pimoko'	Serbian spruce	Zone 5
Full sun. A flat topped mound. Blue green foliage. 1- 1½" yearly growth.		
<i>Picea orientalis</i> 'Barnes'	Oriental spruce	Zone 5
Full sun. Nested form. Very dark green foliage. 1 to 3" yearly growth.		
<i>Picea orientalis</i> 'Mt. Vernon'	Oriental spruce	Zone 5
Full sun. Extreme dwarf mound. Tiny green needles.		
<i>Picea pungens</i> 'Hoops'	Colorado spruce	Zone 3
Full sun. Prostrate form, blue needles. Very slow.		
<i>Picea pungens</i> 'Mrs Cesarini'	Colorado spruce	Zone 3
Full sun. Blue-green, flat mound. 1- 1½" yearly growth.		
<i>Picea pungens</i> 'Jean Iseli'	Colorado spruce	Zone 2
Full sun. Tiny steel-blue bun. Very dwarf.		
<i>Picea sitchensis</i> 'Papoose or Tenas'	Sitka spruce	Zone 5
Full sun. Conical form. Needles are green on one side and blue on the other. 1 to 3" yearly growth. 36" x 20" in 10 years.		
<i>Pinus aristata</i> 'Sherwood Compact'	Bristlecone pine	Zone 5
Full sun. Globe or pyramidal shaped. Needles flaked with pitch deposits. 1 to 3" yearly growth.		
<i>Pinus banksiana</i> 'Schoodic'	Jack pine	Zone 2
Full sun. Prostrate form. Green foliage. 2 to 4" yearly growth.		
<i>Pinus banksiana</i> 'Chippewa'	Jack pine	Zone 3
Full sun. Very dwarf. Green, smallest needled foliage.		
<i>Pinus cembra</i> 'Blue Mound'	Swiss Stone pine	Zone 4
Full sun. Blue mound. Bright blue foliage. 2 to 4" yearly growth. Will reach 2' in 10 years.		
<i>Pinus contorta</i> 'Spaan's Dwarf'	Shore pine	Zone 5
Full sun. Irregular, upright form. Leaves are green and miniature. 3 to 6" yearly growth.		
<i>Pinus mugo</i> 'Mitsch Mini'	Mugo pine	Zone 5
Full sun. Miniature green foliage with green buds. ½ to 1" yearly growth.		
<i>Pinus mugo</i> 'Sherwood Compacta'	Mugo pine	Zone 2
Full sun. Dark green globe. 1½ to 3" yearly growth.		
<i>Pinus parviflora</i> 'Adcock's Dwarf'	Japanese white pine	Zone 5
Full sun. Globose form. Compact blue needles in twisted bundles.		
<i>Pinus parviflora</i> 'Fuku-Zu-Mi'	Japanese white pine	Zone 5
Full sun. Blue mound. Needles are fine in twisted bundles. 2 to 4" yearly growth.		

<i>Pinus parviflora</i> 'O-gon-janome'	Japanese white pine	Zone 5
Full sun. Irregular conical form. Needles are banded with gold. A dragon's eye pine. 3 to 6" yearly growth.		
<i>Pinus strobus</i> 'Horsford'	Eastern white pine	Zone 3
Full sun. Smaller than <i>Glauca</i> 'Nana'. Needles are a soft blue. 1 to 3" yearly growth.		
<i>Pinus strobus</i> 'Minuta'	Eastern white pine	Zone 3
Full sun. Dwarf, flat, bluish-green bun. 1½ to 3" yearly growth.		
<i>Pinus strobus</i> 'Sea Urchin'	Eastern white pine	Zone 3
Full sun. Miniature of a dwarf with blue needles. 1 to 2" yearly growth.		
<i>Tsuga canadensis</i> 'Aurora'	Canadian hemlock	Zone 4
Partial shade. Soft green mound. ½ to 1" yearly growth.		
<i>Tsuga canadensis</i> 'Betty Rose'	Canadian hemlock	Zone 4
Partial shade. Compact, irregular form. White foliage on new growth. ½ to 1" yearly growth.		
<i>Tsuga canadensis</i> 'Camby'	Canadian hemlock	Zone 4
Partial shade. Green leaves. ½ to 1" yearly growth. 15" in 10 years.		
<i>Tsuga canadensis</i> 'Everitt Golden'	Canadian hemlock	Zone 4
Partial shade. Golden upright growth. Tight pyramid. 1 to 3" yearly.		
<i>Tsuga canadensis</i> 'Gentsch White'	Canadian hemlock	Zone 4
Partial shade. Dwarf globose. Foliage tipped in white. 3 to 6" yearly. Can be sheared.		
<i>Tsuga canadensis</i> 'Palomino'	Canadian hemlock	Zone 4
Partial shade. Miniature, flattened, globose. Cinnamon-tipped foliage. ½ to 1½" yearly growth.		

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David Carr
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Robert A Obrizok
Capability's Books, Inc.
2379 Highway 46
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Dwarf and Unusuals

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Cutler, Santa McLean
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Olmstead, Ohio 14070

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Cope, Edward
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1-607-277-2211

Gardening With Conifers

Bloom, Adrian
Firefly Books USA, Inc.
PO Box 1338
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