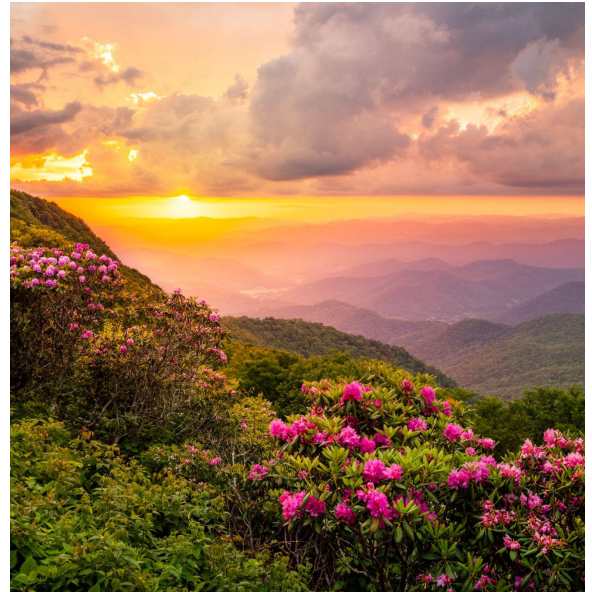


High Altitude Gardening

A Garden Guide

There is nothing quite like living in our gorgeous Appalachian mountains, but gardening at higher elevations can pose some additional challenges. Higher altitudes can have harsh, exposed locations with desiccating winds and low rainfall; other locations can be moist, lush cloud forests. Sometimes these are the same location, just at different times. Plants tend to grow more slowly, and the gardening season is shorter. Soils tend to be very poor, steep, and rocky. Thoughtfully choosing tough, resilient plants will ensure greater gardening success.



USDA cold hardiness zones: How cold does your location get in winter? The more cold hardy, the lower the zone number. Use these numbers - found on our tags, our signs, and in this document - as a guide for how cold hardy particular plants are, keeping in mind that your property may have specific microclimates that may be colder or hotter than generalized maps will indicate (when learning your property, also note areas that are consistently moist or dry, both of which can impact plant survival). There are reference maps at the end of this guide.

Zone 6b: -5F

Zone 6a: -10F

Zone 5b: -15F

Zone 5a: -20F

Zone 4b: -25F

Zone 4a: -30F

Zone 3b: -35F

Zone 3a: -40F

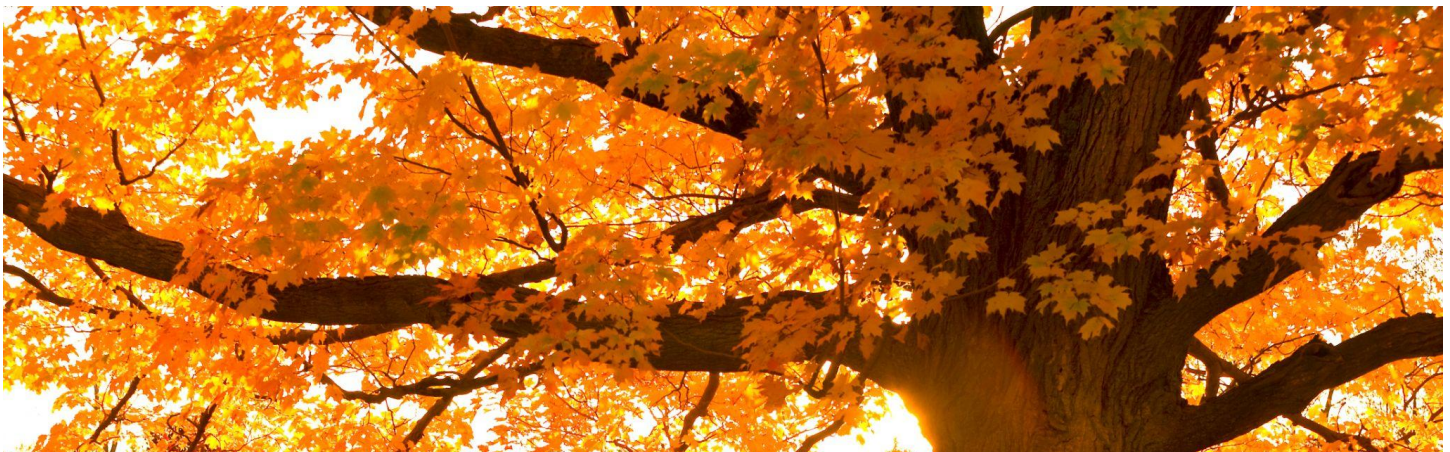
In addition to cold temperatures, exposed mountains can have high winds that can easily dry out plants. Keeping plants well-watered is critical during their first few years getting established in the ground; 3-4" of mulch over the root zone (but not touching trunks or stems) will help to conserve moisture.

Tree Trunk Protection: Young deciduous trees may need trunk protection in winter. Even cold-adapted trees need a few years to develop a thick corky bark layer. High elevation plants can experience extreme cold at night and intense sunshine during the day, the bright winter sun can strike one side of otherwise frozen tree trunks and cause them to split. You can protect your trees by wrapping them in a plastic tree tube, with

burlap or frost cloth, or painting the trunks white (painting may not be as effective as other methods).

If you have a lot of wildlife, trees may also benefit from protection via fencing.

For more information about deer and gardening on steep slopes, ask for our free Garden Guides 'Deer-Resistant Plants for Western North Carolina' and 'Slopes.'



Plant List - Trees & Shrubs - Deciduous:

Latin name	Common Name	Zones	Deer	Native
Acer saccharum	Sugar Maple	4	Tasty	WNC Native
Acer rubrum	Red Maple	2-4	Semi tasty	WNC Native
Aronia arbutifolia	Red Chokeberry	4	Semi tasty	WNC Native
Aronia melanocarpa	Black Chokeberry	3	Semi tasty	WNC Native
Calycanthus floridus	Carolina Allspice	3	Semi tasty	WNC Native
Carpinus betulus	European Hornbeam	4	Semi tasty	No
Carpinus caroliniana	American Hornbeam	4	Semi tasty	WNC Native
Cercis canadensis	Eastern Redbud	4	Semi tasty	WNC Native
Chaenomeles x	Flowering Quince	5	Semi tasty	No
Cladrastis kentukea	Yellowwood	4	Tasty	WNC Native

Cornus alba	Siberian Dogwood	2-3	Semi tasty	No
Cornus sericea	Red Twig Dogwood	2	Semi tasty	NC Native
Corylus americana	American Hazelnut	4	Tasty	WNC Native
Crataegus viridis	Green Hawthorn	4	Least tasty	WNC Native
Diospyros virginiana	American Persimmon	4	Semi tasty	WNC Native
Fagus grandifolia	American Beech	3	Semi tasty	WNC Native
Fagus sylvatica	European Beech	3-5	Semi tasty	No
Forsythia x	Forsythia	4-6	Semi tasty	No
Gleditsia triacanthos	Honeylocust	4	Semi tasty	WNC Native
Hibiscus syriacus	Rose of Sharon	5a	Semi tasty	No
Ilex verticillata	Winterberry Holly	3	Semi tasty	WNC Native
Lindera benzoin	Spicebush	4	Semi tasty	WNC Native
Malus 'Centurion'	Centurion Crabapple	4	Tasty	No
Malus 'Dolgo'	Dolgo Crabapple	3	Tasty	No
Malus 'Purple Prince'	Purple Prince Crabapple	4	Tasty	No
Malus 'Sugar Tyme'	Sugar Tyme Crabapple	4	Tasty	No
Oxydendrum arboreum	Sourwood	5	Semi Tasty	WNC Native
Physocarpus opulifolius	Ninebark	2-4	Semi tasty	WNC Native
Potentilla fruticosa	Cinquefoil	3	Least tasty	NC Native
Prunus cerasifera	Cherry Plum	5	Semi tasty	No
Prunus virginiana	Chokecherry	2	Semi tasty	WNC Native

<i>Quercus alba</i>	White Oak	3b	Tasty	WNC Native
<i>Quercus macrocarpa</i>	Bur Oak	3	Tasty	US Native
<i>Quercus muehlenbergii</i>	Chinkapin Oak	5	Tasty	WNC Native
<i>Quercus rubra</i>	Northern Red Oak	4	Semi tasty	WNC Native
<i>Rhododendron arborescens</i>	Sweet Azalea	4	Tasty	WNC Native
<i>Rhododendron calendulaceum</i>	Flame Azalea	5	Tasty	WNC Native
<i>Rhododendron cumberlandense</i>	Cumberland Azalea	5	Tasty	WNC Native
<i>Rhododendron periclymenoides</i>	Pinxterbloom Azalea	4	Tasty	WNC Native
<i>Rhododendron prinophyllum</i>	Roseshell Azalea	3	Tasty	WNC Native
<i>Rhododendron viscosum</i>	Swamp Azalea	3	Tasty	WNC Native
<i>Rhus aromatica</i>	Fragrant Sumac	3	Least tasty	WNC Native
<i>Rosa rugosa</i>	Rugosa Rose	2	Least tasty	No
<i>Sorbus americana</i>	Mountain Ash	2a	Tasty	WNC Native
<i>Sambucus canadensis</i>	Elderberry	3	Semi tasty	WNC Native
<i>Symphoricarpos albus</i>	Snowberry	3	Semi tasty	US Native
<i>Syringa</i> spp.	Lilac	3	Semi tasty	No
<i>Tilia americana</i>	Basswood	3	Tasty	WNC Native
<i>Vaccinium corymbosum</i>	Northern Highbush Blueberry	4	Tasty	WNC Native

Viburnum cassinoides	Witherod Viburnum	3	Semi tasty	WNC Native
Viburnum dentatum	Arrowwood Viburnum	2	Least tasty	WNC Native
Viburnum trilobum	Highbush Cranberry	2	Semi tasty	US Native
Weigela spp.	Weigela	4-5	Semi tasty	No



Plant List - Trees & Shrubs - Evergreen:

Latin name	Common Name	Zones	Deer	Native
Abies concolor	White Fir	4	Least tasty	US Native
Cedrus libani	Cedar of Lebanon	4-5	Semi tasty	No
Chamaecyparis obtusa	Hinoki Cypress	4-5	Semi tasty	No
Chamaecyparis pisifera	Sawara Cypress	3-5	Least tasty	No
Chamaecyparis thyoides	Atlantic Cedar	3-4	Tasty	NC Native
Ilex crenata	Japanese Holly	5-6	Semi tasty	No
Ilex glabra	Inkberry Holly	4-5	Semi tasty	NC Native
Ilex x meserveae	Blue Holly	4-5	Semi tasty	No
Ilex opaca	American Holly	5	Least tasty	WNC Native

<i>Juniperus chinensis</i>	Chinese Juniper	3-4	Least tasty	No
<i>Juniperus horizontalis</i>	Creeping Juniper	3	Least tasty	US Native
<i>Juniperus procumbens</i>	Japanese Garden Juniper	4	Least tasty	No
<i>Juniperus scopulorum</i>	Mountain Juniper	3	Least tasty	US Native
<i>Juniperus squamata</i>	Singleseed Juniper	4	Least tasty	No
<i>Juniperus virginiana</i>	Eastern Red Cedar	3-4	Least tasty	WNC Native
<i>Kalmia latifolia</i>	Mountain Laurel	4a	Least tasty	WNC Native
<i>Leucothoe axillaris</i>	Doghobble	5	Semi tasty	WNC Native
<i>Leucothoe fontanesiana</i>	Mountain Doghobble	4-5	Semi tasty	WNC Native
<i>Mahonia aquifolium</i>	Oregon Grape Holly	5	Least tasty	US Native
<i>Picea abies</i>	Norway Spruce	2-3	Semi tasty	No
<i>Picea glauca</i>	White Spruce	2	Semi tasty	US Native
<i>Picea omorika</i>	Serbian Spruce	4	Semi tasty	No
<i>Picea pungens</i>	Colorado Spruce	3-4	Semi tasty	US Native
<i>Picea purpurea</i>	Purple Cone Spruce	4	Semi tasty	No
<i>Pinus banksiana</i>	Jack Pine	3	Tasty	US Native
<i>Pinus cembra</i>	Swiss Stone Pine	3	Semi tasty	No
<i>Pinus contorta</i>	Lodgepole Pine	4-5	Semi tasty	US Native
<i>Pinus densiflora</i>	Japanese Red Pine	4	Semi tasty	No
<i>Pinus flexilis</i>	Limber Pine	4	Semi tasty	US Native
<i>Pinus jeffreyi</i>	Jeffrey Pine	5	Tasty	US Native
<i>Pinus koraiensis</i>	Korean Pine	3	Semi tasty	No

<i>Pinus mugo</i>	Mugo Pine	2	Least tasty	No
<i>Pinus nigra</i>	Austrian Pine	3b	Least tasty	No
<i>Pinus parviflora</i>	Japanese White Pine	5	Semi tasty	No
<i>Pinus strobus</i>	Eastern White Pine	3	Tasty	WNC Native
<i>Pinus thunbergii</i>	Japanese Black Pine	5	Least tasty	No
<i>Pinus wallichiana</i>	Himalayan White Pine	5	Tasty	No
<i>Pinus</i> x 'Domingo'	Domingo White Pine	4	Semi tasty	US x non-US hybrid
<i>Rhododendron catawbiense</i> hybrids	Catawba Rhododendron	4	Tasty	WNC x non-US hybrid
<i>Rhododendron maximum</i>	Rosebay Rhododendron	3	Tasty	WNC Native
<i>Taxus</i> x <i>media</i>	English x Japanese Yew	4-5	Tasty	No
<i>Thuja occidentalis</i>	American Arborvitae	3	Tasty	WNC Native
<i>Thuja plicata</i>	Western Red Cedar	5	Semi tasty	US Native
<i>Thuja</i> x 'Green Giant'	Green Giant Arborvitae	5a	Semi tasty	US x non-US hybrid
<i>Thuja</i> x 'Steeplechase'	Steeplechase Arborvitae	5a	Semi tasty	US x non-US hybrid
<i>Tsuga canadensis</i>	Eastern Hemlock	4	Semi tasty	WNC Native
<i>Viburnum acerifolium</i>	Mapleleaf Viburnum	3-4a	Semi tasty	WNC Native
<i>Viburnum</i> x Nantucket	Nantucket Viburnum	5	Semi tasty	No
<i>Viburnum</i> x <i>Pragense</i>	Prague Viburnum	5	Semi tasty	No



Plant List - Perennials, Subshrubs, and Geophytes - Deciduous:

Latin name	Common name	Zones	Deer	Native
<i>Achillea millefolium</i>	Yarrow	3-4	Semi tasty	WNC Native
<i>Alcea rosea</i>	Hollyhock	2	Semi tasty	No
<i>Allium schoenoprasum</i>	Chives	3	Least tasty	No
<i>Amsonia tabernaemontana</i>	Eastern Bluestar	3	Least tasty	WNC Native
<i>Anacyclus depressus</i>	Mount Atlas Daisy	4	Semi tasty	No
<i>Andropogon gerardii</i>	Big Blue Stem	3-4	Semi tasty	WNC Native
<i>Aquilegia canadensis</i>	Eastern Columbine	3	Semi tasty	WNC Native
<i>Arabis blepharophylla</i>	Rock cress	3-4	Least tasty	No
<i>Arisaema triphyllum</i>	Jack in the Pulpit	4	Least tasty	WNC Native
<i>Aruncus dioicus</i>	Goat's beard	3-4	Semi tasty	WNC Native
<i>Asclepias tuberosa</i>	Butterfly Milkweed	3	Least tasty	WNC Native
<i>Aurinia saxatilis</i>	Basket of Gold	3	Semi tasty	No
<i>Brunnera macrophylla</i>	Heartleaf Brunnera	3	Least tasty	No
<i>Calamagrostis</i> × <i>acutiflora</i>	Feather Reed Grass	5	Semi tasty	No

<i>Caryopteris x clandonensis</i>	Bluebeard	5	Least tasty	No
<i>Ceanothus americanus</i>	New Jersey Tea	4	Tasty	WNC Native
<i>Clematis 'Jackmanii'</i>	Jackmanii Clematis	4	Tasty	No
<i>Comptonia peregrina</i>	Sweet Fern	2	Semi tasty	WNC Native
<i>Coreopsis auriculata</i>	Mouse-eared Tickseed	4	Semi tasty	WNC Native
<i>Coreopsis grandiflora</i>	Large Flower Tickseed	4	Semi tasty	WNC Native
<i>Coreopsis lanceolata</i>	Lanceleaf Coreopsis	4	Semi tasty	WNC Native
<i>Coreopsis rosea</i>	Pink Tickseed	3	Semi tasty	US Native
<i>Coreopsis tripteris</i>	Tall Tickseed	4	Semi tasty	WNC Native
<i>Coreopsis verticillata</i>	Threadleaf Coreopsis	3	Least tasty	NC Native
<i>Dianthus spp.</i>	Cheddar Pink, etc.	3-4	Semi tasty	No
<i>Digitalis purpurea</i>	Foxglove	4	Least tasty	No
<i>Echinacea purpurea</i>	Coneflower	3a	Semi tasty	WNC Native
<i>Echinops</i>	Globe Thistle	3	Least tasty	No
<i>Epimedium</i>	Barrenwort	4-5	Semi tasty	No
<i>Eranthus hyemalis</i>	Winter Aconite	4	Least Tasty	No
<i>Euphorbia polychroma</i>	Cushion Spurge	4	Least tasty	No
<i>Eupatorium purpureum</i>	Joe Pye Weed	4	Semi tasty	WNC Native
<i>Festuca glauca</i>	Blue Fescue	4	Least tasty	No
<i>Gaillardia aristata</i>	Blanket flower	3-4	Semi tasty	US Native
<i>Gaillardia x grandiflora</i>	Blanket flower	3-5	Semi tasty	US Native

Geranium sanguineum 'Max Frei'	Bloody Geranium 'Max Frei'	3	Semi tasty	No
Geum x	Avens	3	Least Tasty	varies
Iris cristata	Dwarf Crested Iris	3	Least tasty	WNC Native
Iris sibirica	Siberian Iris	3	Least tasty	No
Lamium maculatum	Spotted Deadnettle	3	Least tasty	No
Leucanthemum spp.	Shasta Daisy	4-5b	Semi tasty	No
Liatris spicata	Gayfeather	3	Semi tasty	WNC Native
Lobelia cardinalis	Cardinal Flower	3	Least tasty	WNC Native
Mentha sp.	Mint	varies	Least tasty	varies
Monarda didyma	Scarlet Beebalm	4	Semi tasty	WNC Native
Muhlenbergia capillaris	Pink Muhly Grass	5-6	Least tasty	WNC Native
Narcissus	Daffodils	3	Least tasty	No
Paeonia officinalis	Peony	3	Least tasty	No
Panicum virgatum	Switchgrass	5	Semi tasty	WNC Native
Papaver orientalis	Oriental Poppy	3-4	Semi tasty	No
Passiflora incarnata	Maypop vine	5	Semi tasty	WNC Native
Pennisetum alopecuroides	Chinese Fountain Grass	5-6	Semi tasty	No
Penstemon digitalis	Beardtongue	3	Semi tasty	WNC Native
Perovskia atriplicifolia	Russian Sage	5	Semi tasty	No
Phlox divaricata	Woodland Phlox	3	Semi tasty	WNC Native
Phlox paniculata	Tall Garden Phlox	4	Semi tasty	WNC Native

<i>Polemonium reptans</i>	Jacob's Ladder	3	Least tasty	WNC Native
<i>Ratibida pinnata</i>	Mexican Hat	3a	Semi tasty	US Native
<i>Rudbeckia fulgida</i>	Black-eyed Susan	3	Semi tasty	WNC Native
<i>Rudbeckia laciniata</i>	Cutleaf Coneflower	3a	Semi tasty	WNC Native
<i>Rudbeckia subtomentosa</i>	Sweet Coneflower	4	Semi tasty	NC Native
<i>Rudbeckia triloba</i>	Brown-eyed Susan	4	Semi tasty	WNC Native
<i>Schizachyrium scoparium</i>	Little Bluestem	3	Semi tasty	WNC Native
<i>Solidago</i> spp.	Goldenrod	varies	Tasty	Mostly US
<i>Sporobolus heterolepis</i>	Prairie Dropseed	3	Semi tasty	WNC Native
<i>Stachys byzantina</i>	Lamb's Ear	4	Least tasty	No
<i>Tiarella cordifolia</i>	Foam Flower	3	Semi tasty	WNC Native
<i>Thermopsis villosa</i>	Carolina Lupine	4	Least tasty	WNC Native
<i>Thymus vulgaris</i>	Thyme	5a	Least tasty	No
<i>Veronica</i> hybrids	Speedwell	4, but varies	Semi tasty	No
<i>Veronicastrum virginicum</i>	Culver's Root	3	Semi tasty	WNC Native

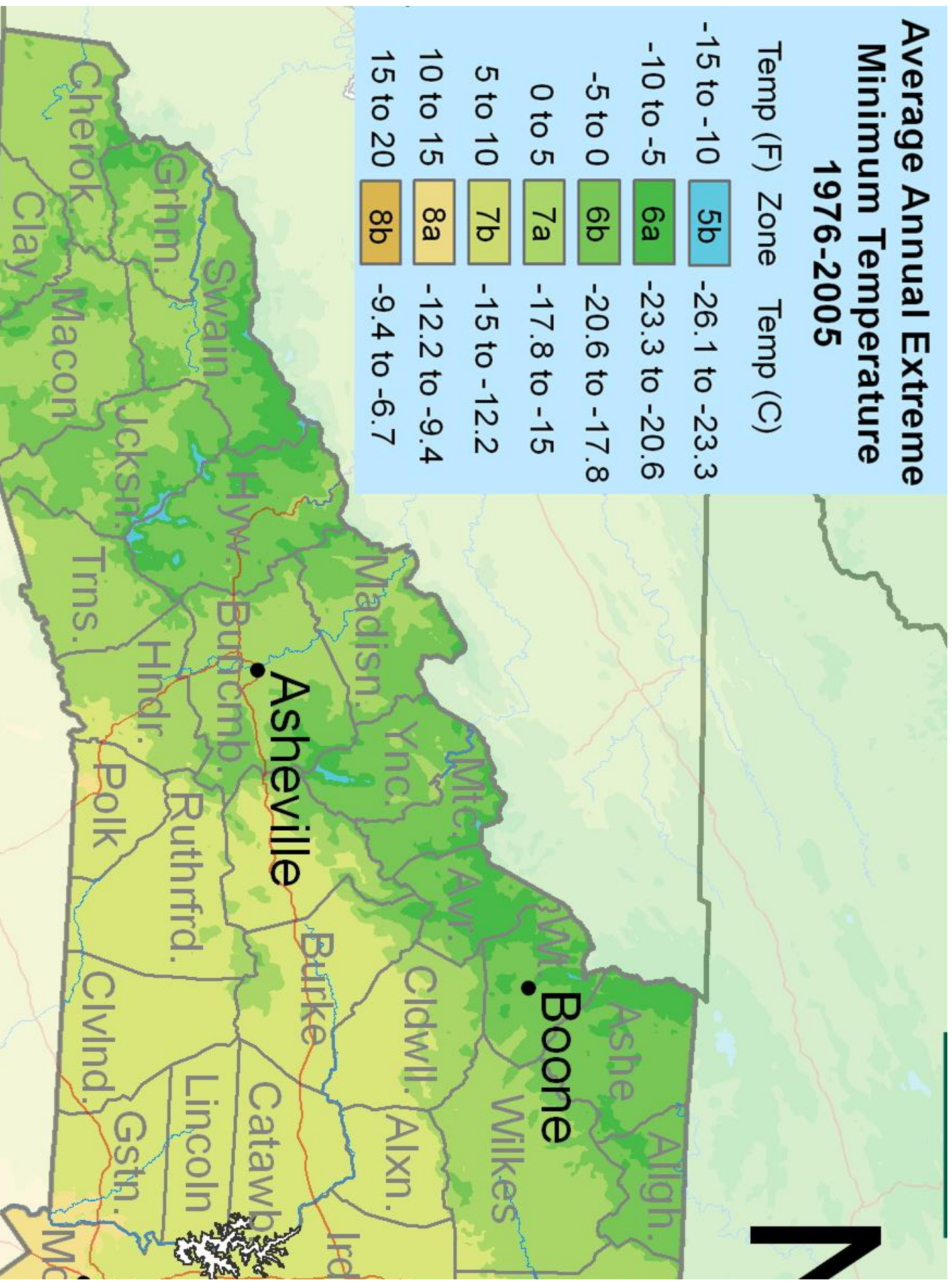


Plant List - Perennials and Small Woody Plants - Evergreen:

Latin name	Common name	Zones	Deer	Native
Ajuga reptans	Ajuga (semi-evergrn)	3a	Least tasty	No
Arctostaphylos uva-ursi	Bearberry	2	Semi tasty	US Native
Bergenia cordifolia	Pigsqueak	3	Least tasty	No
Carex appalachica	Appalachian Sedge (semi-evergreen)	3	Semi tasty	WNC Native
Carex pensylvanica	Pennsylvania Sedge (semi-evergreen)	3	Semi tasty	WNC Native
Chrysogonum virginianum	Green and Gold (semi-evergreen)	5	Semi tasty	WNC Native
Cotoneaster adpressus	Creeping Cotoneaster	4	Semi tasty	No
Cotoneaster dammeri	Bearberry Cotoneaster	5a	Semi tasty	No
Helleborus orientalis	Lenten Rose	4	Least tasty	No
Heuchera americana	Alumroot, Heuchera (semi-evergreen)	4a	Semi tasty	WNC Native
Microbiota decussata	Russian Cypress	2-3	Least tasty	No
Phlox stolonifera	Creeping Phlox (semi-evergreen)	5	Semi tasty	WNC Native
Phlox subulata	Creeping Phlox (semi-evergreen)	3a	Semi tasty	WNC Native
Polystichum acrostichoides	Christmas Fern	3a	Least tasty	WNC Native
Sedum spp.	Sedum	varies	Semi tasty	Rarely
Sempervivum	Hens and Chicks	4	Least tasty	No

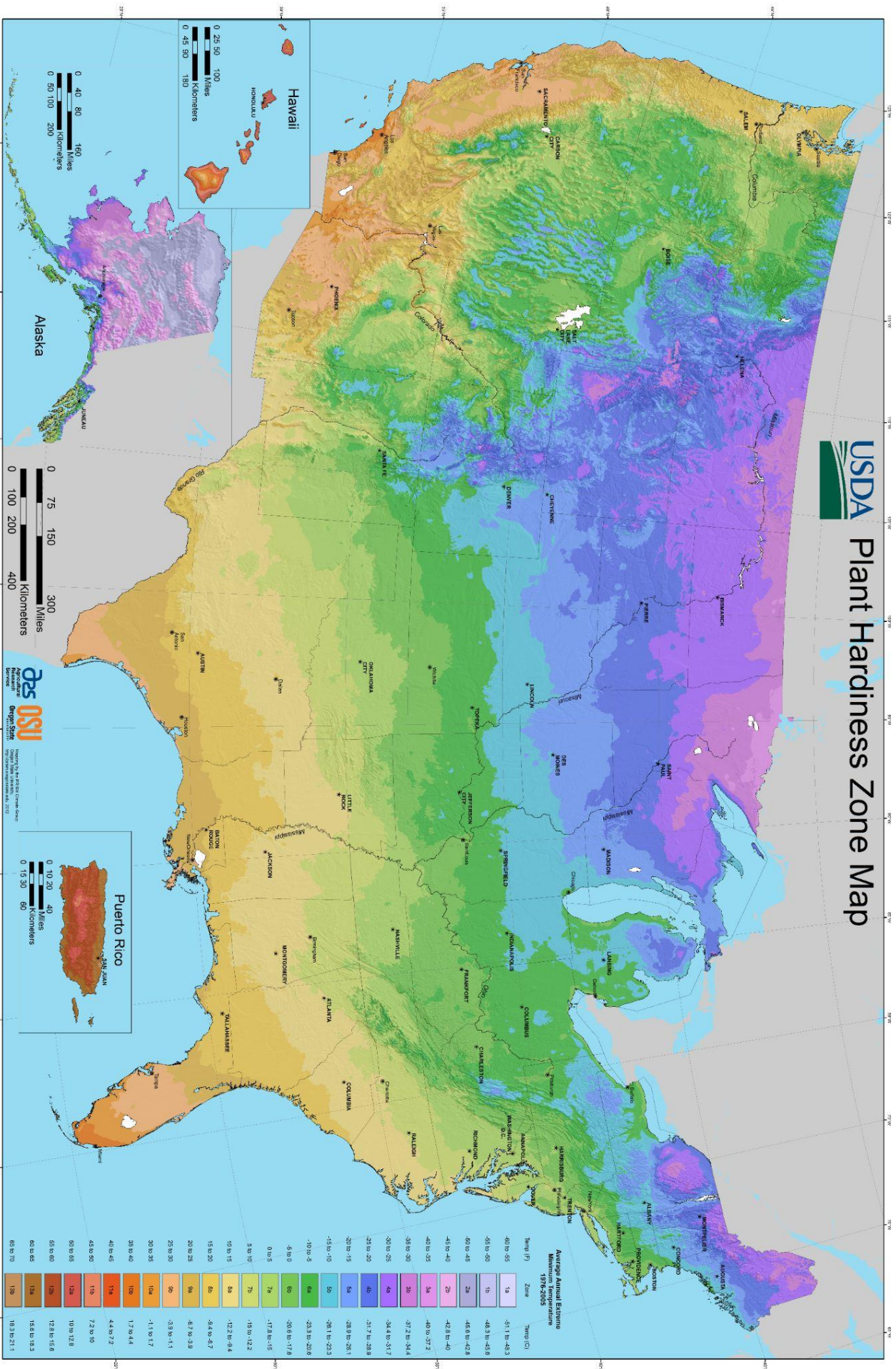
Average Annual Extreme Minimum Temperature 1976-2005

Temp (F)	Zone	Temp (C)
-15 to -10	5b	-26.1 to -23.3
-10 to -5	6a	-23.3 to -20.6
-5 to 0	6b	-20.6 to -17.8
0 to 5	7a	-17.8 to -15
5 to 10	7b	-15 to -12.2
10 to 15	8a	-12.2 to -9.4
15 to 20	8b	-9.4 to -6.7

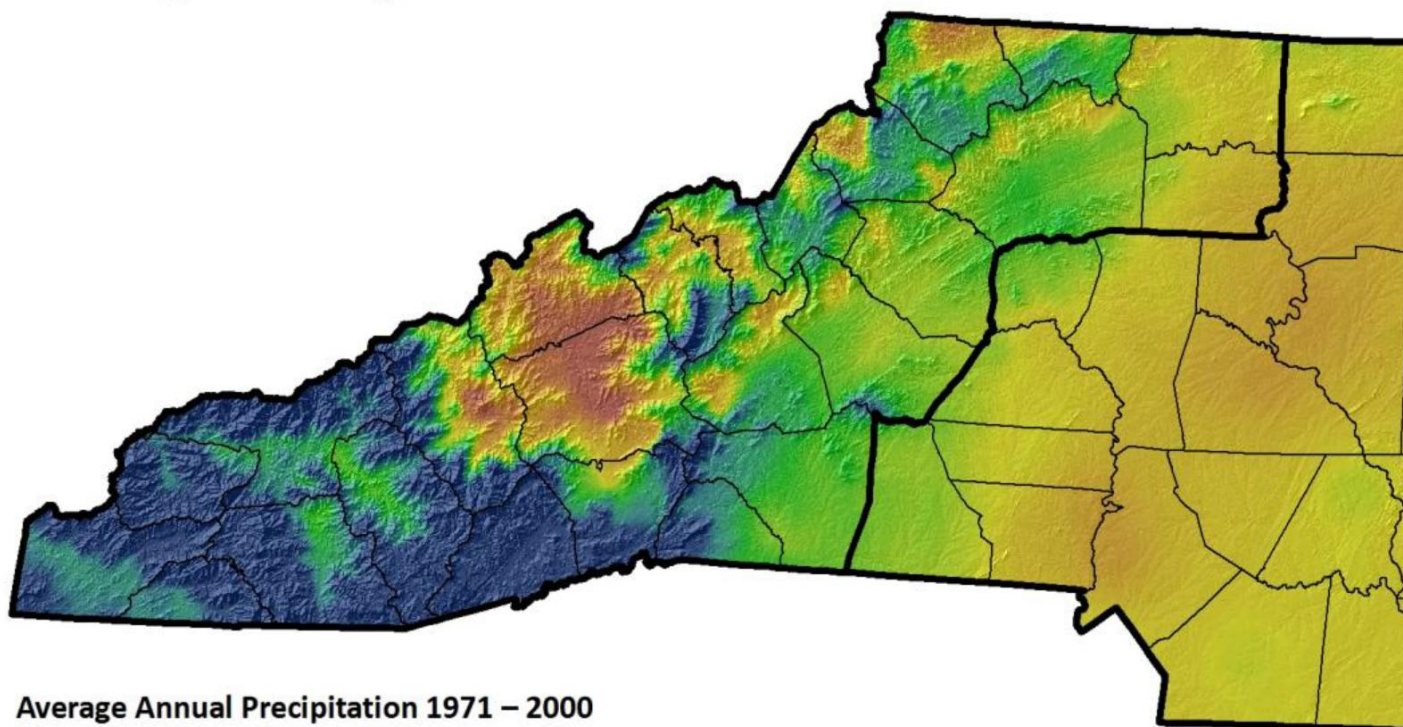




Plant Hardiness Zone Map



Average Precipitation



Average Annual Precipitation 1971 – 2000

Inches



The Mountains have both the wettest and driest points in the state. The Southern Mountains, along the eastern escarpment, average just over 90 inches of rainfall while the Asheville area receives about 37 inches of rainfall on average.

Many thanks to BONAP, Missouri Botanical Garden, North Carolina Extension Gardener Plant Toolbox, UNCA NEMAC, USDA Plant Hardiness Zone Maps, and more for all their great information.

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