

Cold-Hardy CONTAINERS

Rugged shrubs in permanent pots
add life to the frozen landscape

WORDS & PHOTOGRAPHS BY **WARREN LEACH**

I have been exploring the wild landscapes of Maine since my youth, and I have always been intrigued by the outcrops of rock ledges that mysteriously rise up through the surface of the ground. My curiosity has been piqued not just by their geology, but also by the assemblage of plants that grow in shallow pockets of soil and out of fissured cracks. Conifers that establish a foothold in a favorable niche in these rock outcrops are dwarfed by the harsh and restrictive environment. Their contorted forms mimic the meticulously pruned and trained trees that are cultivated in the ancient Japanese art of bonsai. These granite ledges form a magical, lilliputian garden.

The ability of arborvitae, spruce, juniper and pine to grow in such a hostile environment is remarkable. Their roots spread near the soil surface

Opposite: *Pinus virginiana* 'Wate's Golden', a Virginia pine cold hardy to USDA Zone 4, is one of the numerous conifers that author Warren Leach has kept in year-round outdoor containers over many years.

and are also prized in cracks in the rock. There is not even a degree difference between the frigid winter air temperature and the ground. There is no temperature buffer for the roots that deep loam soils and mulches in other locales provide. The ability of these plants to survive in this unique, bleak habitat validates anecdotal evidence of the hardiness of their roots. This experience of seeing these cold-hardy plants along the rocky coast of Maine promoted my passion for growing plants in permanently planted outdoor containers. They can also add life and enviable dimension to the winter garden.

Plant Selection

Most everyone has had an indoor potted plant or two, perhaps an assortment of African violets thriving by an east-facing window over the kitchen sink, or a collection of cacti and succulents basking in hot southern exposure. Growing tender or tropical plants outside in containers is also a routine practice for gardeners, and numerous books have been written about this practice.





There is little literature on the subject of winter-hardy containers. For more than 40 years, I have grown trees, shrubs and perennials successfully in permanent containers year-round outdoors. The first time I used a permanent planter in a client's landscape was in 1982. A topiary form of yew (*Taxus cuspidata* 'Capitata') was planted into a 36-inch-diameter stoneware rolled-rim pot. It has been a winter feature and a focal point in an entrance garden ever since. In our home garden, *Thuja occidentalis* 'Rheingold', a favorite dwarf conifer with chartreuse foliage, graces a complementary cobalt-blue pot. When potted, a dwarf Chinese elm (*Ulmus parvifolia* 'Seiju') has the sculptural bearing of a bonsai, without the painstaking effort of training.

In November 2002, I taught a workshop at the Scott Arboretum in Swarthmore, Pa., on planting and

Above, left to right: The arborvitae called *Thuja occidentalis* 'DeGroot's Spire' provides a vertical accent in its permanent pot. Containerized witch hazel announces winter's end at Swarthmore Arboretum, on the grounds of Pennsylvania's Swarthmore College. Cranberry plants (*Vaccinium macrocarpon*), winter hardy to Zone 2, grace a hanging trough made of angle iron.

growing winter-hardy, permanent containers. Over the last 20 years, it has been gratifying to see so many permanently planted containers added to their gardens. The superbly landscaped grounds of the Swarthmore College campus and the horticultural collections of the Scott Arboretum are exemplary. The result of this artistic integration adds a tremendous, broad depth to the arboretum and its educa-



tional and aesthetic experiences. It is an environment that is rarely found in other arboreta.

Plant Selection

When planting permanent pots, the first matter to consider is the selection of plants. Many species of conifers in the following genera are rated to be cold hardy in USDA Zones 2 through 4: *Abies*, *Juniperus*, *Picea*, *Pinus* and *Thuja*. These are plants that can withstand winter temperatures of -20 to -50 degrees (F). It is best to select plants for permanent pots that are at least two hardiness zones colder than the regional hardiness zone.

Some plants, though perfectly hardy when planted in the ground, have roots that are not as immune to cold when raised in container nursery production. Hollies are one of many plants known to have cold-sensitive roots.

Severe winter temperatures can cause damage and death to hollies grown in pots, even when protected in a covered hoop house.

Choosing a Container

Weatherproof pots are made from many different materials. Some options are rot-resistant wood, cast stone, lead and zinc. Durable plastics and fiberglass are lightweight and can mimic heavy terracotta clay containers. I am particularly fond of durable stoneware pots made with strong clay and a heavy mix of grog. Stoneware, even unglazed, becomes vitreous from its high firing and does not absorb water like soft, low-fired earthenware pots.

To prevent the breakage of stoneware containers, it is essential that pots are filled with potting soil throughout the winter. If they are empty, they will fill with water and freeze. Freezing and

expanding ice will even break granite! Also raise the container off the ground by setting it on several bricks to ensure drainage. This will prevent stress fractures that occur when the bottom of the pot freezes to the ground but the top is warmed by the winter sun.

Making square planter boxes from wood is not a new concept. In late 17-century France, at the Château de Versailles, tree boxes were developed to display and grow orange trees in the garden's elaborate parterres. Since the citrus trees were not cold-hardy, they were moved into a glass-glazed orangerie for the winter. The boxes were made with cast-iron frames and removable wooden sides. Contemporary versions of this classic, Versailles-style planter still add an architectural geometry to the garden.

Tufa is a natural, porous limestone rock prized by alpine-plant enthusiasts and rock gardeners. Hypertufa is a fabricated amalgamation of Portland cement, peat moss and perlite. It can be cast or modeled into both geometric and naturalistic, stone-like troughs. I use a hypertufa recipe of equal proportions by volume of those three ingredients. Concrete dyes can be added to customize the color. The strength and durability of a hypertufa trough are achieved through the process of curing; that is, covering and sealing the newly formed container with plastic for

Plants are just amazing.

—Warren Leach

a minimum of 10 days—this allows for a long, damp cure. Ideally, the finished hypertufa container should be placed in the shade of trees to age; this will hasten the development of patina.

Choose containers with shapes and colors that add a sculptural quality to the garden. The size of the container should also be large enough to prevent frequent drying. I recommend pots that are 24 inches in diameter or larger for small trees and shrubs.

The Potting Mix

Once plants and containers have been selected, it is time for the potting mix. Drainage and structural stability are the most important factors in making a potting mix. A permanent growing medium will be much different from the soilless peat moss and bark-based mix that is the standard used for seasonal tender plants, sold as “potting mix.” That organic soil will substantially break down and decompose in one growing season; it will also shrink and lose its structure.

Permanent pots require a coarse-textured growing mixture composed of one-third loam soil by volume. Add another one-third portion of an equal mixture of aggregates: Combine granules of calcined clay (Turface) with one-half inch of crushed stone or expanded shale. A mixture of compost and peat moss rounds out the organic final third of the soil mix.

Care & Placement

As with any container-grown plant, watering is essential and should continue through fall. Unlike bonsai trees, permanently potted hardy trees and shrubs do not need a regime of root pruning and repotting. Even after 34 years, my dwarf Alberta spruce is thriving with little attention other than watering. The plants will reach and maintain an equilibrium of top growth and root growth. Hardy trees and shrubs should be fertilized infrequently, and only with a slow-release fertilizer.

Growing a plant in a container also promotes its presence in the garden, as if raising it on a stage. I have literally elevated a hypertufa trough, displaying it on three-foot-high pipe stilts, and planted it with one of my favorite dwarf conifers, ‘Schoodic’ jack pine. The added height from the legs allows the container to stand out, an accent against a mixed herbaceous border. In winter, its elevated stance sets it well above drifts of snow.



Above: Warren Leach planted the pitch pine *Pinus rigida* 'Sand Beach' in a shallow hypertufa tray placed atop stout legs cut from a felled tree's trunk. Three-toothed cinquefoil (*Sibbaldiopsis tridentata*) covers the soil surface in a planting theme that mimics its natural habitat on the coast of Maine.

Right: *Pinus banksiana* 'Schoodic', a dwarf jack pine, grows inside a stoneware urn that Leach elevated on lengths of pipe. This configuration makes the pine's reaching evergreen branches much more noticeable and prominent than if the container sat at ground level or if this compact conifer was planted within the garden.





Adjacent Ideas

While roofs and walls are not pots per se, they are self-contained growing areas with artificial perimeters, so their planting requirements are similar to permanent plantings in pots.

Planting a green roof with succulents and sedums (*Sedum*) is no longer extremely rare—green roofs are an important measure to conserve energy and mitigate stormwater discharge. In dense, urban areas, there is often little room for growing trees. Acres of green-planted roof surfaces help reduce the intensity of urban heat islands in summer.

Taking a cue from the plants that flourish on flat roofs, I put a slant on the proposition. I designed and constructed an outdoor shower space that is enclosed with louvered walls planted with sedums. The containers that hold the plants are stainless-steel trays that

measure 20 inches by 48 inches, with a 2-inch-high lip. A spaced series of these trays are attached to wooden posts and positioned at a 45-degree angle. The planted walls are not irrigated; the planting medium is lightweight, with aggregates of pumice and Turface. The sedums' foliage remains attractive year-round. Even in winter, this planting is colored in shades of green and reddish bronze. Plants are just amazing.

My first professional horticultural employment after graduating from the University of Maine in 1976 was to work with Ludwig Hoffman at his nursery in Bloomfield, Conn. The urban and suburban landscapes were a foreign environment from the nature that I knew from growing up in Maine.

One of Lud's corporate clients was the Constitution Plaza in Hartford. This landmark of urban renewal was designed by architect Charles DuBose

Opposite: Inspired by green-roof plantings, Leach created living walls to enclose an outdoor shower, using four-foot-long stainless-steel trays filled with lightweight growing medium and hardy succulents including sedums, which remain colorful throughout winter.

PLANTS

for the

WINTER GARDEN



Perennials,
Grasses, Shrubs,
and Trees to Add
Interest in the
Cold and Snow



WARREN
LEACH

READ MORE!

The text and images on these pages are an excerpt from Warren Leach's *Plants for the Winter Garden*, published by Timber Press in late 2024. The book explores design techniques, woody plants, perennials and other elements that greatly enhance cold-season views.

and landscape architects associated with Sasaki, Dawson and DeMay in 1964. It is a roof garden, elevated above the street level, that covers a below-ground parking garage.

Constitution Plaza encompasses more than three acres of terraces and planted landscape around commercial buildings. Gumdrop-shaped, pleached littleleaf linden (*Tilia cordata* 'Greenspire') is planted in large, six-foot-diameter concrete planters. These are accompanied by honeylocust (*Gleditsia triacanthos* 'Shademaster') and star magnolia (*Magnolia stellata*). Ovoid-shaped, turf-covered mounds planted with weeping willow (*Salix xpendulina* 'Elegantissima') are actually large planters retained by an 18-inch-high concrete

curb. The perimeter of the plaza forms a linear concrete trough, and it is planted with a hedge of dark green yew (*Taxus xmedia* 'Densiformis').

In retrospect, there is a parity between the dissimilar landscapes of the Maine coast and downtown Hartford. The massive expanses of exposed bedrock and granite ledges of Maine provide similar growing conditions to the monumental, reinforced-concrete slab that supports Constitution Plaza. The ornamental beauty and life-giving spirit of plants unify these microcosms.

However large or small, adorn your winter garden with hardy plants in containers. It is a prime opportunity to add the beauty of plants to spaces that have no soil to cultivate. ❧

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