



Riparian buffer installation in the Niantic River watershed. Photo by Judy Rondeau.

Coastal Planting Guide for Long Island Sound

Plant Care

A properly planted tree, shrub or herbaceous perennial will have a high survival rate, grow and establish quickly, perform as expected and be tolerant of adverse conditions. Proper planting techniques must be used in conjunction with proper site preparation activities and proper plants selection for the site and location. Failures in any one of these three aspects of establishing a riparian corridor can lead to unsatisfactory results, damage to the environment and an unattractive waterfront landscape.

Soils on the Long Island Sound Coast

In general, the soils found along the coast adjacent to Long Island Sound are acidic, sandy loams with relatively low fertility. They dry out rapidly and tend to be droughty soils. In some locations there are wet seeps below

the upper layers of drier sand. These locations can provide plants more moisture if the plant roots can grow down to reach the moist layers. Bear in mind that these challenging soil conditions, along with frequent windy conditions and often full exposure, can make plant establishment difficult.

Planting Techniques for Trees and Shrubs

Container vs. Balled & Burlapped Plants

Trees, shrubs and vines can be purchased in a number of forms, but the two most common forms available in the Long Island Sound area are balled and burlapped (B&B) or container-grown plants. B&B plants are those that have been grown in mineral soil in a field setting and they are either hand dug or

tree spade dug in the early spring. Growing areas for B&B plants generally have good agricultural soils, so the rootball on these plants will have a mineral soil that is different than the sandy loam soil that exists in coastal locations.

B&B plants will have biodegradable burlap covering the rootball that is held in place with pins (nails) or is tied. Tree spade dug trees (generally larger tree sizes) will often have their rootball covered with burlap that is framed with a wire basket. The wire basket is necessary to keep the rootballs from falling apart due to their large size and weight. B&B or tree spade dug plants have lost up to 75% of their root system when they were dug (i.e., 75% of the roots remain in the field where the plant was grown). It is important to be aware of this fact when utilizing B&B plants. Do not expect to see significant new top growth on B&B plants during the first growing season. During the establishment year the plant will be putting its resources into restoring its root system and not into top growth.

Container-grown shrubs will most often come in 2 to 5 gallon pots and trees will be in 7 to 25 gallon pots. Container-grown plants are typically grown in a very well-drained organic medium comprised of composted bark, peat moss and sand. During production, container-grown plants are watered nearly every day and are supplied with a constant source of nutrients through controlled release fertilizer prills. The plants grow very rapidly and lushly and are subject to drying out if not watered regularly. Another issue with container-grown plants is that they can easily become pot bound and develop circling roots if grown too long in a particular pot size. Circling roots can lead to girdling roots as the plant grows older in the landscape. Treatments to correct circling roots (see section on “Plant Preparation”) should be employed prior to planting. In general, for sandy coastal soils, it is recommended to use plants in a larger pot sizes when possible. As long as the plants are not pot bound, and proper aftercare is provided,

plants with larger root balls should be better able to establish in the sandy soil conditions found along the coast.

Remember, call before you dig

In Connecticut, call toll free: 1-800-922-4455 or dial 811. Call 2 full working days in advance to locate buried utility pipes and cables.

In New York, call 1-800-272-4480, or visit www.digsafelynewyork.com/excv/ocnyc.asp

Planting Time

B&B and container stock can be planted in the spring, summer or early fall. B&B material is dug in early spring and then healed in to hold it for the season. Once supplies of plants are sold out, new plants cannot be dug until late summer or the following early spring. Container plants are generally available throughout the growing season, but best selection can be found in the spring. Spring is the best time to plant trees, shrubs and vines, but early fall is another good time to plant for many species. Summer planting can also be successful, but special attention will have to be given to regular irrigation. Spring gives plants more time, essentially the whole growing season, to get their roots established. Fall planting is successful for many species because the tops of the plants are going dormant and need less water and nutrients, but the roots continue to grow well into the fall since soil temperature remain warmer than the air temperature.

Planting Hole

A planting hole for a tree or a shrub should be dug two times as wide as the root ball. The hole should only be dug as deep as the root ball depth, so when planted, the top of the root ball is at the same level as the surrounding soil, or slightly higher. In the past, planting recommendations used to suggest digging the hole deeper than the root ball depth

and then back filling the bottom of the hole with loosened soil. The problem with this recommendation is that the loosened soil settles and the whole plant sinks into the planting hole, and ends up being planted too deep. Now, the recommendation is for the bottom of the root ball to sit on firm, undisturbed soil so that settling is less likely to occur.

Plant Preparation

When using B&B plant material, try to remove the burlap, twining and/or pins as much as possible. Even though burlap is biodegradable, before it decomposes it can slow root establishment, create air pockets and wick water out of the soil and into the air. If the burlap can't be completely removed without causing the root ball to break apart, roll back as much of the burlap as possible and cut it off so any remaining burlap will be buried. Buried burlap will not function as a moisture wick to dry out the root ball area. For trees with wire baskets on the root ball, cut away as much of the basket as possible without causing the root ball to fall apart. Although it doesn't seem as though leaving the wire basket in place would have detrimental effects on plant establishment and growth, research has proven otherwise.

When using container-grown plants for your planting, carefully remove the pot and inspect the root system. In some instances it may be necessary to cut the pot from the root ball. Recently potted plants may not be well-rooted into the entire ball, so care must be taken to not break apart the root ball. In contrast, plants may be root bound or pot bound with lots of roots circling around the bottom part of the root ball. Circling roots need to be corrected prior to planting so there is no longer a potential for development of girdling roots. Girdling roots result from circling surface roots that press against the plant trunk as they grow in diameter, eventually girdling part of the trunk. One method to correct circling roots is to separate and straighten the circling roots with your hands as the plant is being planted.

Alternatively, shallow vertical cuts can be made on four sides of the root ball to cut through the circling roots. The bottom of the root ball must also have criss-cross cuts made into it to sever circling roots. The distal parts of cut roots will die and the remaining root stubs will re-grow roots out into the soil in a non-circling formation.

Backfilling the Hole

In most cases, it is best to backfill the planting hole with the native soil that came out of the hole. In sandy soils, adding 30% organic matter can be helpful for moisture retention, nutrient retention and improving soil texture, but it isn't necessary. Adding too much organic amendment to the backfill soil should be avoided. Overdoing it with amendment can create unnatural moisture gradients where the organic amended soil and root ball is either wetter or drier than the surrounding soil. Remove roots and rocks from the backfill soil and homogenize the topsoil layer with the lower subsoil layers and any amendment being added.

When the hole has been half backfilled with soil, water it thoroughly to work the soil around the root ball and to minimize air spaces. Finish backfilling, create a 2" to 3" high watering berm around the plant, and water thoroughly. A soil berm will contain the water so it is forced to percolate into the root ball area.

Aftercare - Watering

Newly planted plants will need to be watered regularly during their first year to insure successful establishment. Consistent watering is probably the single most important aspect of plant aftercare. Typically, trees or shrubs will need two to seven gallons of water weekly, but this depends on natural precipitation received, temperatures and wind. Slow application of water is preferred to allow for deep penetration of the irrigation.

Six things you should know when planting a tree.



1. **Call Before You Dig** - Seven days before planting, call the national 811 hotline to have underground utilities located.
2. **Handle with Care** - Always lift tree by the root ball. Keep roots moist until planting.
3. **Digging a Proper Hole** - Dig 2 to 5 times wider than the diameter of the root ball with sloping sides to allow for proper root growth.
4. **Planting Depth** - The trunk flare should sit slightly above ground level and the top-most roots should be buried 1 to 2 inches.
5. **Filling the Hole** - Backfill with native soil unless it's all clay. Tamp in soil gently to fill large air spaces.
6. **Mulch** - Allow 1 to 2 inch clearance between the trunk and the mulch. Mulch should be 2 to 3 inches deep.

For more tree-planting tips and information, visit arborday.org.

Source:  **Arbor Day Foundation**
9007501



(Above, left) A mulch “volcano” can lead to growth problems, as well as disease issues.



(Above, right) A properly mulched tree with mulch thinning to none at the trunk of the tree. (Diagrams courtesy of the Missouri Department of Conservation www.MissouriConservation.org)

Aftercare - Mulching

The best mulch to use is non-dyed, softwood bark-based mulches (pine, spruce, fir, hemlock, or cedar). Mulch allows for better water infiltration, holds soil moisture, moderates root zone temperature, suppresses weeds and helps prevent mower and string trimmer damage. A 3” deep layer of mulch is usually ideal and mulch reapplication should not be at a frequency which allows the depth to increase. Beds or areas of shrubs and herbaceous perennials should have mulch applied throughout the planting. Trees should have a 3’ to 6’ diameter circle of mulch around them, but the mulch depth should thin to nothing as one approaches the trunk. Mulch “volcanoes” around trees are unacceptable and will lead to trunk diseases. In general, the use of porous weed barrier fabric or plastic under mulch is not recommended.

Aftercare - Fertilization

Fertilization during the first growing season is recommended, but do not expect to see dramatic growth stimulation from the fertilization application. During the first year, especially for B&B plants, plants are becoming root established and significant top growth in response to fertilizer is often not seen. The fertilizer is still benefitting the plant even if it isn’t clearly visible as shoot growth. Ideally, fertilizer should be applied based on recommendations

stemming from soil test results. Special care must be exercised in riparian areas to avoid nutrient runoff and leaching that can easily pollute the nearby Long Island Sound. A surface applied granular 10-10-10 (N-P-K) fertilizer is often the most economical choice for riparian plantings. Apply in late April or early May at a rate of 1 to 2 pounds of actual N per 1000 sq. ft. of area. Once established, properly selected riparian species may not require annual fertilization to remain healthy and attractive.

Aftercare - Pruning

Prune out any dead or damaged shoots or branches at planting time. In the past, the recommendation was to remove 25% to 40% of the plant canopy to compensate for root loss during digging, but this practice is no longer promoted. With expanded use of container-grown plants there is not root loss as there is with B&B plants. Also, research has shown that it is better to preserve the canopy so maximum photosynthesis can be realized, which helps build back the root system quickly.

Aftercare - Staking

Young trees will do better without staking. Free movement of a tree canopy in the wind causes the trunk to thicken in response to the motion and develop proper trunk taper and flare at the base. Staked trees have “skinny” trunks and are less strong. Only

stake trees that are unstable or bend over in winds or after rainfall. Coastal locations often receive relatively strong winds, so staking may be required. Staking materials should use padded ties so the bark isn't damaged and should allow for some trunk movement. Tree stakes should generally only be left in place for one year.

Planting Techniques for Herbaceous Perennials

Herbaceous perennials are perennial plants whose tops go dormant and die down each fall. They do not develop permanent, above ground woody stems. This group of plants includes flowering perennials, foliage perennials, grasses, sedges and non-woody groundcovers. Herbaceous perennials are commonly sold in quart, 1 gallon and 2 gallon sizes, so digging their planting holes is easier than for large tree and shrub rootballs. If herbaceous perennials are being installed in beds or large groupings, it can be useful to cultivate in a 2" layer of organic matter (compost) over the planting area prior to planting. The organic matter will improve water and nutrient retention in sandy coastal soils.

All herbaceous perennials can be planted in the spring and many can be successfully planted in the fall (late August through early October) as well. Warm season grasses (those that grow optimally in

the heat of the summer) should not be fall planted. For fall planting, it is probably better to use larger sized plants since the rootball is larger with a more extensive crown and root system. Larger plants are less likely to heave out of the ground in the freeze-thaw cycles of the winter than smaller plants. The same recommendations made for trees and shrubs regarding planting depth and circling root remediation also apply to herbaceous perennials. Excavating a large hole diameter for herbaceous perennials is not as important as it is for trees and shrubs. Furthermore, digging very wide holes is typically not practical in most herbaceous perennial installations due to the close spacing of plants and the large numbers of plants that are used.

For areas with perennials, a mulch layer between 1" to 2" deep is recommended. Watering during establishment is critical and a weekly 1" application of water should be provided except when substantial natural precipitation is received. Herbaceous perennials will benefit from a surface application of a complete granular fertilizer, such as 10-10-10 (N-P-K) at a rate of 1 pound of actual N per 1000 sq. ft. during their establishment period.

Website: clear.uconn.edu/projects/crig

Sea Grant

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