

Creating Landscapes for Spy Pond and Beyond

Frances H. Clark, Carex Associates, 3/21/10

Why lakeshore plantings?

1. Prevents erosion by waves and ice. A mix of different trees and shrubs form a network of deep roots to hold the soil and slow and filter water. Aquatic vegetation growing in the water itself also reduces impact of waves. Many properties have hard shores to prevent erosion.
2. Improves water quality: buffer plantings reduce soil erosion by intercepting rain drops, slowing sheet run off and increasing water absorb into the ground; Also reduces nutrients, turbidity and siltation which affects native aquatic vegetation and health of lake. Curtails geese by providing a barrier to their grazing. Geese love open areas for safety.
3. Lawn reduction: Lawns are a major source of fertilizer and pesticides, including phosphorous. 1 lb of phosphorous can nourish 500 lbs of aquatic vegetation and algae. Increased algae and dense aquatics reduce light and oxygen for healthy lake environment.
4. Beautifies property and increases property value.
5. Adds wildlife value—creates habitat for animals of a small kind: birds, butterflies, dragonflies; reduces mosquitoes.
6. Can inspire reduction of invasives.

What makes lake shore plantings different than other types of plantings?

1. Water near or around roots: All plants need oxygen in their roots to grow. Most soils have 50% air holes that temporarily hold water for easy access by tiny root hairs. Saturated soils have very little air and a different soil chemistry. Only a few species can withstand anaerobic soil conditions: those adapted to wetlands, floodplains, wet meadows, or stream edges. At the edge of the pond, water elevations can change about 1 foot during flooding or droughts. Depending on your shore edge elevation, can be 1-2' above or just a few inches above the water table.
2. Wind desiccates plants: leaves have holes on the underside that open up during the day to take in CO₂ for photosynthesis; the by products of water and O₂ leave through the leaves. On windy days more H₂O transpires through the leaves than the roots can take up so leaves wilt and/or close down. Winter winds are particular problem for evergreen leaves of rhododendrons.
3. Sun: depends where you are: but often have half shade then full sun for half a day.
4. People perspective: Small lots and lake activity, so desire privacy while retaining views to the lake.

Process—

1. Evaluate site conditions and jot down features on scale drawing:
 - a. Place house and bounds and permanent physical structures on base map
 - b. Underground and overhead obstructions.
 - c. Soils—
 - i. Dig down and check—depth to water, texture—gritty=sandy, or sticky=clay.
 - ii. Do soil test! – pH, fertility, organic content, other.

- iii. Moisture levels: wet: 1' or closer to surface; moist: usually top 4-6" remains moist and cool, water table below 1'; dry: feels dry most of time, often sandy.
 - d. Light—
 - i. Compass direction
 - ii. Observe throughout seasons: trees, fences, walls. –
 - iii. Vegetables, herbs, most showy perennials and annual flowers, require direct sun = 6+ hours/day in summer; part sun = 2-5 hours sometime during the day; this is typical for day lilies, hosta, begonias, impatiens; Shade=less than 2 hours of sun, but high shade, not that of deep evergreen shadows for ferns, some hosta and ground covers like vinca and ivy.
 - e. Microclimates--Wind direction and intensity. Hot and cold spots
 - f. Views both good and bad
 - g. Second sheet: Current plantings and beds like
2. Know your habits:
- a. What do you like: favorite plants, colors, type: food, flowers, fragrance etc. ; style: formal, informal.
 - b. How do you use your property now and in next few years: small children, entertaining, sitting relaxing.
 - c. How much time: Gardens require attention. Time to work and to sit and appreciate. When are you there ? When do you typically go on vacation? How long are you planning on living there!
 - d. Budget: Consider your garden as an investment, can/should go in phases. Think about any major renovations in the future: don't plant a tree right where you will add the addition. Having a plan will help you budget time and \$!
3. Design:
- a. Tools: Use hoses, lime, stakes, rocks or pots to shape ideas. As most lots are small, easy to manage, 1-2 large trees max. for shade, an accent tree. Sketch on plan.
 - b. Desired spaces – screens and openings, accent/focal points. Consider purpose and intent of each area: Front: formal welcome, back: private, relaxed or entertainment, private nook, access points.
 - c. Sketch in basics first:
 - i. Screening—fences, hedges, fences with vines
 - ii. Views: from where? How enjoy?
 - iii. Planting areas: beds, accent points, etc.
 - d. Phase the work: which areas or types first. Start small. Start a nursery, compost pile.
4. Select plants for the place and purpose.
- a. Hardiness: USDA Zone 6 , look at what is thriving in area.
 - b. Soil adaptability: pH 5.6-6.5 most plants, acid <pH 5.6 for rhododendrons, azaleas, mountain laurel, Andromeda etc. blueberries.
 - c. Soil moisture: Wet near edge, moist to dry as go up slope.
 - d. No Invasive Exotics.
 - e. Light requirements.
 - f. Habit (plant form), heights and width, seasonal interest
 - g. Preferably Natives: if properly selected and established can be lower maintenance in the long run. Beautiful. Friendly to nature. Help global climate change.

- h. Plant list: based on the above—fun research! See what’s growing in the neighborhood, local parks, go to botanical gardens like Garden in the Woods, Arnold Arboretum, Greenway.
5. Preparation:
- a. Prepare areas for planting ahead of time—use hoses etc to help outline.
 - b. Ground prep: invasives removal—herbicide if must but be very careful; or smother, or persistently cut. To reduce lawn: sod cutter, newspapers and mulch, etc. new bed preparation: remove top growth and add 3-4 inches of well rotted compost with mulch on top.
 - c. Plant shopping: Buy local, good quality stock. Early spring or early fall. Smaller trees and shrubs adapt more readily and are cheaper.
 - d. Planting: Critical to do it right:
 - i. Placement: use stakes to help know where big plants should go. Arrange: lay out beds and determine spot for accent plants. several plants together for swathes, then add accents strategically
 - ii. Loosen roots, plant at same depth, same soil, label, water in. Continue to water deeply 1”/wk (if no rain) till mid Sept. Also second year.
 - iii. Weed and mulch. Donut holes not volcanos! Not too deep or close.

Plant List: All Natives

Larger Trees—40+ feet—for shade and framing:

- Oaks—very high in wildlife value, upland have taproots that make very difficult to transplant older plants, floodplain has fibrous roots: for edge of pond: swamp white oak—*Q. bicolor* – craggy looking tree. pin oak—*Quercus palustris*—lower branches bend down, common street tree; burr oak—*Q. macrocarpa*—limestone soils; upland: red oak—*Q. rubra*, graceful tree but must plant young;
- Sycamore: *Platanus occidentalis*—great bark, large leaves and ball like fruits.
- Silver maple: *Acer saccharinum*– for edge: very large, fast growing.
- Black cherry –one of best native plants for insects and birds—easy to grow.
- Black gum: *Nyssa sylvatica*—interesting habit, small leaves that turn maroon red in fall.
- Birches: important for variety of caterpillars of both butterflies and moths, including cecropia moth and viceroy; also birds eat caterpillars and seeds. River birch – *Betula nigra* – good orange peeling bark, light shade, small leaves (white birch is less tolerant of heat and drying, have have the right spot. Black birch: *B. lenta* - away from edge—easy to grow
- White pine—upland—gets huge. (not hemlock which prefers shade and has woolly adelgid), not ashes due to ash decline; black willow – *Salix nigra* – very large tree for floodplains, tends to fall apart, as part of survival tactic. Weeping willow is not a native plant.
- Bitternut hickory: *Carya cordiformis*—floodplain species—would be an interesting addition.

Small Trees: 20-30’ – These naturally grow on edges of lakes and ponds, in wetlands or in understory of bottomlands : use for focal point or screening.

- Shadbush, Serviceberry: *Amelanchier* spp. white flowers in very early spring, silvery bark, various species and habits. Excellent wildlife: birds eat berries, hosts larvae of several butterflies, attracts many pollinators. Deep purple to red berries in early summer. - *A. canadensis*--tall shrub, tolerates the moist wet, to moderately dry. Downy service berry: *A. arborea*--tree, moist well drained to dry soils. Fruits are unpalatable to us. *A. laevis*.

Similar to *A. arborea*. But tolerates higher ground. New growth bronzy purple and delicious dark purple fruits higher ground.

- Arborvitae: *Thuja occidentalis*—evergreen accent, screening; prefers moist cool organic soils but adaptable. Good winter cover and nest sites for birds.
- American hornbeam, muscle wood: *Carpinus carolinana* – 20', grows in shade, moist to wet soil. Fall color. Low woods in shade. Smooth muscle-like bark. Plant in spring, prune in fall early winter. Several butterflies use this as a host: white admiral, striped hairstreak, and tiger swallowtail.
- American holly: *Ilex opaca*—evergreen, sun to light shade, acid, moist organic matter, need male and female for fruiting. Gets leaf spot if stressed.
- Sweetbay Magnolia: *Magnolia virginiana*—semi evergreen. Wonderfully fragrant flowers in June.
- Gray birch: *Betula populifolia*—clumps attractive, light shade. Not white birch—too hot and dry.
- Alternative-leaved dogwood - *Cornus alternifolia* - wide horizontal branching of flowering dogwood, but flowers are clusters of very small flowers, attractive pink to dark blue fruit and fall color.
- Sassafras (mitten plant) – *Sassafras albidum* – buy container grown plants. Sun to part shade best. Alligator bark, dioecious, Spicebush swallowtail butterflies. Cecropia moths
- Red Cedar – *Juniperus virginiana*—dry sandy to alkaline soils. Attracts cedar waxwings. Evergreen with various cultivars available.

Shrubs: Many wetland species can tolerate much drier conditions. More sun, more flowers and fruits, and better fall color. But more sun, more water needed. Can plant individually, but usually more effective if grouped in 3-5s. Most of the species listed grow to 6-12+ feet eventually:

- Pussy willow – *Salix discolor*; good to have one in the neighborhood! Gets big.
- Wild Roses 3-4': Swamp rose- *Rosa palustris* – requires wet feet—pink flowers in summer, bright red rose hips. *Rosa virginiana* – Virginia rose for drier well drained sites. Beautiful flowers and fruits. Both species are spreading plants with thorns and need sun.
- Common Elderberry – *Sambucus canadensis*—large, coarse plant with wide sprays of flowers and fruits (for elderberry wine), good nesting habitat for warblers and the like.
- Dogwoods: shrubs with clusters of small white flowers and colorful fruits and foliage, Red-osier— *C. sericea*: white fruit, red-maroon stems; Silky--*C. amomum*, porcelain blue fruits – , Gray- *C. racemosa*—red stems to white fruit. keep them cut back for color in stems.
- Viburnums: late spring sprays of small white flowers; moisture and sun for best fruiting. American cranberrybush - *V. opulus* var. *americanum* (*V. nudum*)—red fruits; moist to wet; Arrowwood - *V. dentatum*—blue fruits, moist to dry; - Witherod – *Viburnum nudum*— good fall color and mixed colored fruits, wet to moderately dry.
- Highbush blueberry – *Vaccinium corymbosum* - two different clones required for fruit. Colorful twigs, red fall color and blueberries!
- Red Chokeberry – *Aronia arbutifolia*—a bit rangy, flowers pretty up close, red fruits. Good fall color. Tolerant of wet to dry.
- Azaleas: require acid, organic soils for best results. Swamp azalea – *Rhododendron viscosum*—fragrant white to pink flowers early to mid summer; Roseshell - *R. prinophyllum* (*R. roseum*) – stream edge plant light to dark pink flowers with wonderful fragrance!
- Winterberry – *Ilex verticillata* – female, red fruits excellent for birds.
- Sweet pepperbush – *Clethra alnifolia* with cultivars e.g. 'Hummingbird' and 'Ruby spice'. Plentiful fragrant spikes of white to pink flowers in mid summer.
- Spicebush – *Lindera benzoin* - for shadier spot. Male and female—very early, delicate yellow flowers, red berries on female plants, spicebush swallowtail butterflies! Fragrant leaves.
- Ink berry - *Ilex glabra* – moist to dry sandy—small evergreen leaves, screening or background. 3-6 feet; cultivars are more compact.

- Myrica pensylvanica – bayberry - dry, sandy, gray fruit cherished by yellow-rumped warblers and swallow. Fragrant leaves. Wax on fruit was used to make candles.
- Mountain laurel - *Kalmia latifolia* – upland acid, partial shade; evergreen with glorious flowers in June. Requires acid, organic, well-drained soils. Flowers best with more light but not hot sun.
- Oakleaf hydrangea - *Hydrangea quercifolia* - mid summer large flowers, lovely fall color – native more south. Moist not wet conditions.
- Dwarf fothergilla - *Fothergilla gardenii* - common in the trade, can take moist to wet soils. Very colorful fall foliage. ‘Blue Mist’ widely available, with bluish leaves.
- Vines: Virginia creeper – *Parthenocissus quinquefolia* – extensive vine with deep pink, blue fruit if enough sun. Wild clematis – *Clematis virginiana* – white flowers in fall on tangled stems.

Perennials – Given a small area, these can be used as seasonal shrubs! With more interest. Select wet meadow plants where wet near sunny pond edge, and more upland meadow plants where drier and still sunny. Use woodland wildflowers and ferns for shady corners. The meadow plants are excellent nectar plants for a wide range of pollinators. Also, their seeds can attract birds such as goldfinches in fall. Most listed do best in sun to part sun, moist to wet feet, unless otherwise indicated. Most except the early spring species grow to 4-6 feet by the time they bloom in mid summer to fall.

- Sweet flag – *Acorus americanus* – member of the arum family, leaves are fragrant, still upright like swords. Water’s edge 3-4’.
- Asters – *Aster* or *Symphiotrichum* - 3-4’: Blue to purple: New England Aster – *A. novae-angliae*, *A. puniceus* – red stemmed aster. , Aster white: *A. lanceolatus*. *Aster umbellatus*; *Boltonia asteroides* – sun to part shade—very similar to a white aster.
- Swamp milkweed – *Asclepias incarnata* - wet to moist – 2-3’ pink flowers, attract butterflies galore!
- Marsh marigold – *Caltha palustris* - if soggy edge; 1’ very early flowers
- Turtle head – *Chelone glabra* – white flowers in fall. Adapted to garden soil or swamp. Sun best.
- Joe-pye weeds – *Eupatorium* spp large 4-6’ plants -- mostly purple: *E. purpureum*, *E. dubium*, white: boneset: *E. perfoliatum* –
- Blue-flag iris – *Iris versicolor* – 2-3’ tall wetland iris - (not yellow flag – *I. pseudacorus* which is invasive!)
- Cardinal flower - *Lobelia cardinalis* – 2-3’ spikes of deep cardinal-red flowers attract hummingbirds, ok in some shade. Blue relative great blue lobelia – *L. siphilitica* – blue with white flowers.
- Monkey flower – *Mimulus ringens* - 3+ ft. lavender flowers, tall, require sun and wet feet.
- Mountain mint – *Pycnanthemum virginianum* - closely related to the red bee balm: *Monarda fistulosa*, *M. didyma*.
- Cone flowers – These two are yellow:– Cut-leaf – *Rudbeckia laciniata*- for wet ; Gray headed coneflower – *Ratifida pinnata* for slightly drier.
- Three tall blue species – 6’+: Blue vervain – *Verbena hastata*; Ironweed – *Vernonia noveboracensis*. - Culver’s root – *Veronicastrum virginicum*
- Bottled gentian – *Gentiana andrewsii* – a special treat in mid fall. 1-2’ blue gems, pollinated by bumblebees. _
- Loosestrifes– the native species are yellow! - *Lysimachia ciliata* – and Swamp Candles - *L. terrestris* –
- Golden alexanders – *Zizia aurea* – 1-3 foot tall, with yellow—carrot-like flowers.
- Sedges and rushes: Various species

- Ferns—from wettest to more drought tolerant: Ostrich fern – *Matteuccia struthiopteris*, Royal fern—*Osmunda regalis* – wettest, Cinnamon fern – *O. cinnamomea*, Interrupted - *O. Claytonia*; Sensitive fern—*Onoclea sensibilis*,

Websites:

- New England Wild Flower Society: Native plants, information, courses 180 Hemenway Road, Framingham, MA 01701 – 508-877-7630 www.newenglandwild.org.
- Project Native – 342 North Plain Road, Housatonic, MA 01236, 413-274-3433 www.projectnative.org.
- New England Wetland Plants, Inc. 820 West St. Amherst, MA 01002. 413-549-4000 www.newp.com

Books:

- Cullina, William. 2009. *Understanding Perennials: A new look at an old favorite*. Houghton, Mifflin, Harcourt. Boston.*
- Cullina, William. 2007. *Growing and Propagating Wildflowers*. Houghton Mifflin More of a focus on horticulture, this fun to read book by one of “our own” has great tidbits on the ecology of our native wildflowers.
- Cullina, William, 2002, *Native Trees, Shrubs, Vines*. Houghton Mifflin. More on the woody natives.
- Dirr, Michael, and Charles W. Heuser, Jr. *The Reference Manual of Woody Plant Propagation: From Seed to Tissue Culture*. Varsity Press, Inc. Athens, GA 1987.
- Eastman, John. 1995. *The Book of Swamp and Bog: Trees, Shrubs, and Wildflowers of Eastern Freshwater Wetlands*. Stackpole Books. Mechanicsburg, PA.
- Minnesota Dept. of Natural Resources. *Landscaping for Wildlife and Water Quality*. 1-800-657-3757
- Tallamy, Douglas W. 2007. *Bringing Nature Home. How Nativej Plants Sustain Wildlife in our Gardens*. Island Press. Portland. OR.