



## **Christopher Riely, CF | Conservationist and Licensed Forester**

42 Harkness Street, Providence, Rhode Island 02909 | (401) 225-6135 | christopher@sweetbirchconsulting.com

### **COST ESTIMATE FOR FUTURE REFORESTATION OF PROPOSED MAXSON HILL SOLAR ARRAY SITE FOLLOWING DECOMMISSIONING\***

\*Cost estimates provided are based on present costs for practices and specifications to meet reforestation objectives as set forth in initial cost estimate. This estimate does not include costs of potential additional practices such as site preparation, watering or mulching, invasive plant control, etc. See accompanying spreadsheet for details.

1. 5-year reforestation project management contract with professional forester:

- 144 hours over course of project @ \$95/hour = \$13,680.00

Total area for Planting = 64.5 acres

Number of bare-root plants per acre = 300 (100 pine + 100 hardwood seedlings + 100 shrubs)

2. Initial planting stock costs (including shipping & handling) = 14,244.50

- Based on average of costs from two large regional tree seedling nurseries operated by New Hampshire Division of Forests & Lands and New York Department of Environmental Conservation, respectively

3. Deer protection equipment for seedlings and shrubs planted during initial planting = \$30,896.15

- 5" x 48" mesh seedling protector tubes, bamboo stakes, and plastic ties + shipping
- Based on estimate provided by Forestry Suppliers, Inc.

4. Initial planting labor (including equipment and overhead costs):

- Estimates inferred from USDA Natural Resources Conservation Service cost estimate data
- 64.5 acres @ \$600/acre = \$38,700

5. Planting stock costs for replanting the equivalent of 20 acres during a subsequent year, assuming ~30% seedling/shrub mortality in scattered areas following initial planting = \$4,350.50

- Based on average of costs from New Hampshire and New York State Nurseries

6. Labor costs for replanting equivalent of 20 acres (assuming ~30% mortality)

- 20 acres @ \$600/acre = \$12,000

**TOTAL REFORESTATION COST ESTIMATE = \$113,871.15**

Contingency = 20% of cost estimate = \$22,774.23

Total reforestation cost estimate + 20% contingency = \$136,645.38

Practice: 612 - Tree/Shrub Establishment

Scenario #1 - Hardwood Hand Planting-bare root-protected

**Scenario Description:**

Improving the hardwood forest setting by hand planting hardwood tree seedlings. Seedlings are protected from deer browsing. The number of trees to plant is lower than establishing a new forest. Resource concerns are degraded plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation.

**Before Situation:**

In an existing upland forest the present trees are poor quality, at low stocking levels, or are undesirable species. Existing conditions do not meet landowner objectives of growing high quality trees. Wildlife habitat is poor due to the above described conditions. Resource concerns are degrade plant condition - undesirable productivity and health, and Inadequate structure and composition; inadequate habitat for fish and wildlife - habitat degradation. Prior to planting any needed vegetation control will be conducted first.

**After Situation:**

The area of treatment is 10 acres. Bare root hardwood seedlings are planted by hand in the best locations for seedling survival. Solid tree tubes are installed to protect seedlings from animal browsing damage. Post planting vegetation control is planned to ensure seedling survival.

Feature Measure: Area of Treatment

Scenario Unit:: Acres

Scenario Typical Size: 10.0

Scenario Total Cost: \$5,818.28

Scenario Cost/Unit: \$581.83

Cost Details:

Component Name	ID	Description	Unit	Cost	QTY	Total
<b>Equipment Installation</b>						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hours	\$17.02	25	\$425.50
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hours	\$21.45	25	\$536.25
Trailer, flatbed, small	1505	Small flatbed trailer (typically less than 30' in length) pulled by a pickup to transport materials and equipment. Truck not included.	Hours	\$9.74	25	\$243.50
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hours	\$11.56	50	\$578.00
Water tank, portable	1602	Portable water tank transported in a pick up truck. Typically with 200 gallon capacity includes tank with pump, hose and sprayer. Does not include the pickup truck. Equipment only.	Hours	\$13.82	25	\$345.50
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hours	\$26.13	50	\$1,306.50
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	\$44.30	4	\$177.20
<b>Materials</b>						
Shrub, seedling or transplant, bare root, 36-60 in.	1508	Bare root shrubs 3 to 5 foot tall. Includes materials and shipping only.	Each	\$2.00	300	\$600.00
Tree shelter, solid tube type, 4 in. x 48 in.	1566	4 inch x 48 inch tree tube for protection from animal damage. Materials only.	Each	\$4.02	300	\$1,206.00
Planting gel, polymer	1576	Polymer planting gel that retains water around seedling roots. Materials only.	Pound	\$10.16	1	\$10.16
Stakes, wood, 3/4 in. x 3/4 in. x 36 in.	1581	3/4 in. x 3/4 in. x 36 in. wood stakes to fasten items in place. Includes materials only.	Each	\$0.73	300	\$219.00
<b>Mobilization</b>						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$170.67	1	\$170.67

Practice: 612 - Tree/Shrub Establishment

Scenario #78 - Individual tree - hand planting

**Scenario Description:**

Tree seedlings will be hand planted in the forested area where few or no forest trees are growing, the existing stand of trees needs underplanting, or the previously planted seedling tree stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions. This resource concern addressed is degraded plant condition -- and inadequate structure and composition, and inadequate wildlife & fish habitat.

**Before Situation:**

The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

**After Situation:**

The prescribed number of trees are hand planted on 20 acres, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

Feature Measure: Area Planted

Scenario Unit:: Each

Scenario Typical Size: 6,000.0

Scenario Total Cost: \$4,262.52

Scenario Cost/Unit: \$0.71

Cost Details:

Component Name	ID	Description	Unit	Cost	QTY	Total
<b>Equipment Installation</b>						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hours	\$17.02	8	\$136.16
Hand tools, tree planting	1590	Various hand tools for digging holes and planting trees such as augers, dibble bars, planting shovel, hoe-dad. Equipment only. Labor not included.	Hours	\$11.56	10	\$115.60
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hours	\$26.13	12	\$313.56
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	\$44.30	4	\$177.20
<b>Materials</b>						
Tree, conifer, seedling, containerized, 8 cu. in.	1518	Containerized conifer stock, 8 cubic inches (e.g. 1.5 x 6 inch). Includes materials and shipping only.	Each	\$0.57	6000	\$3,420.00
<b>Mobilization</b>						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollars	\$1.00	100	\$100.00



State of New Hampshire  
Department of Natural and Cultural Resources  
DIVISION of FORESTS and LANDS  
172 Pembroke Rd. Concord, New Hampshire 03301

PRSRT.STD  
U.S. POSTAGE  
PAID  
CONCORD, NH  
PERMIT NO. 1478

OR CURRENT RESIDENT

*Visit our website at [www.nh.gov/nhnursery](http://www.nh.gov/nhnursery) to view pictures  
of seedlings, mature plants, flowers and fruit.*

**Quality seedlings since 1910**

**DIVISION of FORESTS and LANDS**  
**NH STATE FOREST NURSERY**

quality seedlings  
since 1910

**SPRING**  
**2020**

**405 Daniel Webster Hwy**  
**Boscawen NH**

<b>MAILING ADDRESS:</b> DIVISION OF FORESTS AND LANDS 172 PEMBROKE RD CONCORD, NEW HAMPSHIRE 03301 TEL: (603) 271-2214 FAX: (603) 271-6488 <a href="http://www.nh.gov/nhnursery">www.nh.gov/nhnursery</a>	<b>NURSERY LOCATION :</b> (to pick up seedlings) 405 Daniel Webster Hwy Boscawen, NH 03303 (603) 796-2323
--	---

Dear Valued Customer,

It has been another exciting growing season here at the State Forest Nursery. Our staff has been working hard to continue to bring you the finest tree and shrub seedling species that New England has to offer. It has been a very productive summer and once again we have a variety of both conifer and deciduous species to offer.

Over the last few years, we have been experiencing issues with winter heaving in some of the seedbeds, which has affected fir production. We are pleased to report that we have resolved the issues and will have some wonderful 3 and 4-year-old balsam and Fraser fir seedlings to offer this year. Our two-year-old seedlings are also looking outstanding, and we anticipate another great crop of fir for next year as well.

We are offering a variety of deciduous trees and shrubs which provide great benefits for many species of wildlife. The fruit that is produced from species such as American and European Mountain Ash can be a vital source of nourishment for many bird species. Many of these plants, especially the ones that bloom in early to mid-spring are beneficial to pollinators.

We are excited to announce that we are offering two new species of seedlings for sale this year: spicebush and maple leaf viburnum. The berries of both these species are desired by songbirds. Due to the limited amounts of spicebush, they are only being offered in our wetlands package. Our state tree, paper birch is also available this year! Please look for it in the deciduous tree package.

Information regarding seedlings, planting and the State Forest Nursery can be found on our website, [nh.gov/nhnursery](http://nh.gov/nhnursery), or feel free to give us a call at (603) 796-2323. We can also be reached via email at [Concord.Nursery@dncr.nh.gov](mailto:Concord.Nursery@dncr.nh.gov) or by regular mail at 405 Daniel Webster Highway, Boscawen, NH 03303. Our job is growing seedlings, but our business is serving you! As always, thank you for your support.

*There will be a few openings for seasonal employees for the shipping season in 2020 (starting early to mid-April). If you enjoy working with plants in a farm setting, please give us a call in February. Work is sorting seedlings part time weekdays and we allow for flexible hours/schedules. Contact the Nursery at (603) 796-2323 and ask for Howard Lewis if you are interested.*

Cover: American Mt. Ash



## CONIFER SEEDLINGS

**NOTE:** The following are bare root seedlings as opposed to plugs and must be ordered in quantities listed.

**BALSAM FIR, Abies balsamea** - The original old-fashioned Christmas tree. Steeple-shaped evergreen tree with soft, flat green to blue-green extremely fragrant needles up to 1" long. Prefers moist, well-drained soils; avoid planting in low areas. Mature height: 50-75'.

**Please check [www.nh.gov/nhnursery](http://www.nh.gov/nhnursery) for availability if ordering after Jan. 1st**

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
3 yr.	5-10"	\$10	\$20	\$80	\$400	\$600
4 yr.	12"+	\$15	\$25	\$100	\$500	\$800

**FRASER FIR, Abies fraseri** - Physical characteristics similar to balsam fir but slower growing and good resistance to late spring frosts. These beautiful trees have medium to dark-green needles with a silvery underside. Excellent needle retention for Christmas trees. Prefers moderately well-drained soil on cool sites. Mature height: 50-75'.

**Please check [www.nh.gov/nhnursery](http://www.nh.gov/nhnursery) for availability if ordering after Jan. 1st**

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
3 yr.	5-10"	\$10	\$20	\$80	\$400	\$600
4 yr.	10"+	\$15	\$25	\$100	\$500	\$800

**CONCOLOR FIR, Abies concolor** - Native to the southwest, this tree exhibits blue-green needles up to 3" in length. Becoming popular as a Christmas tree with its striking foliage, good needle retention, and zesty, tangerine fragrance. Prefers well-drained fertile soils. A slow grower, but perfect for someone looking for one-of-a-kind Christmas tree. Mature height: 70-90'.

Age	Size	Per 10	Per 25	Per 100	Per 500
3 yr.	8-14"	\$15	\$25	\$80	\$400

**DOUGLAS-FIR, Pseudotsuga menziesii** - Tall evergreen tree native to western United States. A magnificent tree with soft, 3/4 to 1 1/4" green needles radiating in all directions from the branch. A popular Christmas tree. Susceptible to late spring frost; avoid planting in low areas. Prefers moist, well-drained soils. Excellent response to shearing, one of the fastest growers. Grows best in central and southern NH. Mature height: 60-80'.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
2 yr.	6-10"	\$10	\$20	\$60	\$250	\$400

**WHITE SPRUCE, Picea glauca** - Hardy, symmetrical and naturally dense evergreen. Needles 1/2 to 1", blue-green, angled and sharp tipped. Important for timber and Christmas trees; also used for erosion control and site reclamation because it is adaptable to wide range of planting sites but prefers moderately well to well-drained loamy soils. Grows well throughout NH. Mature height: to 70'.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
2 yr.	4-8"	\$10	\$20	\$60	\$250	\$400
3 yr.	8-16"	\$15	\$25	\$80	N/A	N/A

**BLUE SPRUCE, Picea pungens** - Native to Rocky Mountains of western United States. Popular Christmas tree; good needle retention. Prefers moist, well-drained soils. Mature height: 60-80'.

Age	Size	Per 10	Per 25	Per 100	Per 500
2 yr.	5-8"	-	-	\$60	\$250
3 yr.	8-14"	\$15	\$25	\$80	\$300

**NORWAY SPRUCE, Picea abies** - Fast growing pyramidal tree. Short to medium dark needles. Sometimes planted as a Christmas tree; also produces high-quality lumber. Prefers moderately well to well-drained soils. Grows well throughout NH. Mature height: 60-90'.

Age	Size	Per 10	Per 25	Per 100	Per 500
2 yr.	6-8"	\$10	\$20	\$60	\$250
3 yr.	8-16"	\$15	\$25	\$80	\$300

**RED PINE, Pinus resinosa** - A tall tree widely used for reforestation and gravel pit reclamation. Tolerates wide variety of planting sites but prefers well-drained soils. Shade intolerant; grows well throughout NH. Mature height: to 85'.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
3 yr.	6-16"	\$10	\$20	\$60	\$250	\$400

**SCOTCH PINE, Pinus sylvestris** - A fast growing tree with long needles. Excellent Christmas tree if sheared annually. Prefers well-drained sandy soils. Grows well throughout NH. Mature height: 60-90'. **Please check [www.nh.gov/nhnursery](http://www.nh.gov/nhnursery) for availability if ordering after Jan. 1st**

Age	Size	Per 10	Per 25
3 yr.	10+"	\$15	\$25

**WHITE PINE, Pinus strobus** - One of the most important and tallest timber trees in the northeast; also planted for Christmas trees. Long, soft needles; supple branches. Tolerates a variety of soils. Grows well throughout NH. Mature height: to 100' plus.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
2 yr.	3-6"	-	-	\$45	\$200	\$350
3 yr.	8-12"	\$10	\$20	\$60	\$250	\$400

**RED CEDAR, Juniperus virginiana** - Small dense tree with both scale-like and needle-like leaves, making it less susceptible to deer browse. Grows best in full sun. Rot-resistant heartwood oxblood color and aromatic. Dark blue berries consumed by song and game birds. Grows best in central and southern New Hampshire. Avoid planting near apple trees. Height: 20-40'.

Age	Size	Per 10	Per 25	Per 100	Per 500
2 yr.	5-10"	\$10	\$20	\$60	\$250

**NORTHERN WHITE CEDAR (ARBORVITAE), Thuja occidentalis** - A medium-sized evergreen tree with scale-like leaves. Rot resistant wood is soft, light-colored, durable and aromatic. Tolerates a wide variety of soils, and likes full sun. Cedar swamps provide good winter habitat and food for deer. Mature height: to 70'.

Age	Size	Per 10	Per 25	Per 100
3 yr.	6-10"	\$15	\$25	\$80

**HEMLOCK, Tsuga canadensis** - Tall, dark green, extremely shade-tolerant tree of cool, moist forests. Grows well on wet soils. Excellent winter cover for deer and other wildlife. Grows well throughout NH. Mature height to 80'. **Shipments of hemlock are restricted in many states therefore we cannot ship hemlock out of NH.**

**Please check [www.nh.gov/nhnursery](http://www.nh.gov/nhnursery) for availability before ordering after Jan. 1st**

Age	Size	Per 10	Per 25	Per 100
2 yr.	4-8"	\$10	\$20	\$60

**Please visit**

**[www.nh.gov/nhnursery](http://www.nh.gov/nhnursery)**

**to see sample pictures of these and other species  
in this catalog.**

## **HARDWOOD TREE SEEDLINGS**

**RED OAK, Quercus rubra** - A large tree producing some of the most valuable lumber in the northeast. Prefers fertile, well-drained soils from central NH southward. Oak acorns are a valuable source of winter food and eaten by deer, bear, turkeys and squirrels. These seedlings have been root pruned to stimulate root growth. Mature height: 70-80'.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
2 yr.	6-10"	\$15	\$25	\$80	\$300	\$500

**BLACK WALNUT, Juglans nigra** - Valuable hardwood tree that grows best on rich, well-drained sites in southern NH. Dark brown heartwood lumber used for veneer, furniture, cabinets and ornamental woodworking. Large, round nuts favored by squirrels and mice. Tomatoes, apples and other species may not survive near large walnut trees. Mature height: 70-100'.

Age	Size	Per 10	Per 25	Per 100	Per 500	Per 1000
1 yr.	8-16"	\$15	\$25	\$80	\$300	\$500

**SILVER MAPLE, Acer saccharinum** - A fast-growing shade tree, locally common in bottomlands along larger rivers in the northeast; well adapted to wet sites. Also known as soft, white or river maple. Mature height: 60-80'.

Age	Size	Per 10	Per 25	Per 100	Per 500
1 yr.	8-12"	\$15	\$25	\$80	\$300

**RED MAPLE, Acer rubrum** - A common shade tree with red buds, twigs and flowers. Popular for its yellow to red autumn color. It is well adapted to wet sites. Also known as soft, white, or swamp maple. Mature height: 60-80'.

Age	Size	Per 10	Per 25	Per 100
2 yr.	4-8"	\$15	\$25	\$80

**WHITE OAK, Quercus alba** - A large native tree, slow growing to a height of 80' and more. This valuable timber tree also produces acorns favored by deer, bear, turkey, squirrels and other species of wildlife and songbirds. Grows best in central and southern New Hampshire.

Age	Size	Per 10	Per 25	Per 100
2 yr.	4-8"	\$15	\$25	\$80

## **THE FOLLOWING IS AVAILABLE IN THE DECIDUOUS PACKAGE ONLY**

**PAPER BIRCH, Betula papyrifera** - The State tree of New Hampshire; grows across much of central and northern North America, west to Alaska. A pioneer species, growing quickly on bare, exposed mineral soil in partial to full sunlight. Striking white peeling bark on mature stems, used years ago for canoe and wigwam coverings. Seeds eaten by song and game birds; twigs browsed by deer, moose and snowshoe hare. Mature height: 60-80'.

## NATIVE CONSERVATION SEEDLINGS

Disclaimer: These plants are primarily intended for wildlife and songbird use. Some species may contain toxins harmful to humans if consumed.

The following are 1 or 2-year old seedlings. Heights are at least 6 to 12", and are available for the following prices (except as noted):

Age	Size	Per 10	Per 25	Per 100
1-2 yr.	6-12"	\$15	\$25	\$80

**ARONIA BERRY (black chokeberry), Aronia melanocarpa** - a small (6-10') shrub which grows well in wetlands. It tends to root sucker, forming large clumps. White flowers in June; black berries August - November eaten by songbirds and game birds.

**ARROWWOOD, NORTHERN, Viburnum recognitum** - Soil/site: moist to well-drained; Wildlife value: fruit consumed by songbirds, grouse, chipmunks; Fruit: July to winter. Mature height: 4-12'.

**BAYBERRY, NORTHERN, Myrica pennsylvanica** - Soil/site: well-drained to dry soils, also salt tolerant; Wildlife value: food and cover; plant 1-3' apart for best wildlife use, fruit consumed by songbirds and game birds; This fragrant plant provides food and cover for wildlife. The berries can be used for candle making. Fruit: persists through winter. Mature height: 3-8'.

**BUTTONBUSH, Cephalanthus occidentalis** - Soil/site: wet, pond edges. Flowers mid to late summer; Fruit: favored source of food for waterfowl as well as several songbird & wildlife species. Wildlife value: flowers are a favorite of honeybees and butterflies. Mature height: 3-8'.

**CRANBERRY, AMERICAN Highbush, Viburnum trilobum** - Soil/site: grows in wet to well-drained soils. Uses: plant 4' apart for hedges, 10' apart for singular plants. Wildlife value: red berries retained through the winter are eaten by grouse, turkey, deer and numerous songbirds; browsed by deer, rabbit. Mature height: 12-15'.

**DOGWOOD, ALTERNATE LEAF Cornus alternifolia** - Soil/site: dry to moist soils, good shade tolerance. Flowers: May-June. Fruit: dark berries in clusters eaten by game birds and songbirds. Twigs browsed by deer and rabbits. Mature height: 10-12'.

**DOGWOOD, GRAY, (red panicle dogwood), Cornus racemosa** - Soil/site: moist or dry. Wildlife value: a songbird favorite. Has white flowers in June; Fruit: In late summer the plant produces clusters (panicles) of white berries on red stems. It will grow in partial shade. Mature height: to 15'.

**DOGWOOD, RED OSIER, Cornus sericea** - Soil/site: wet. Uses: stream bank erosion control. Fruit: clusters of white berries in July-August. Wildlife values: fruit preferred by many species of songbirds and game birds. Tolerates partial shade. The bright red twigs seen in the winter are browsed by deer, moose, rabbits. Mature height: to 12'.

**DOGWOOD, YELLOW OSIER, Cornus sericea** - A variety of red-osier dogwood, but with bright yellow twigs throughout the year.

**DOGWOOD, SILKY, Cornus amomum** - Soil/site: wet. Uses: planted for hedgerows, windbreaks and for stream bank erosion control. Fruit: August-September. Wildlife value: bluish fruit eaten by game birds, especially important as a source of food for migrating songbirds; twigs browsed by deer and rabbits. Mature height: 10-12'.

**ELDER, RED BERRIED, Sambucus racemosa** - Similar to elderberry, but flowers late spring with red fruit available early summer. Great for pollinators and songbirds. Tolerates partial shade and variety of soils. Mature height 6-10'. Seedlings may be less than 6" or rootstock.

**ELDERBERRY, COMMON, Sambucus canadensis** - Soil/site: tolerant of wet to dry. Uses: screens or shrub borders planted 4-8' apart; Wildlife value: favored by squirrels, deer and migrating songbirds; Fruit: August-October. Mature height: to 10'. Seedlings may be less than 6" or rootstock.

**GRAPE, NATIVE, Vitis spp** - Size: up to 30' vine. Soil: moist to well-drained fertile soils. Spacing 1-2'. Wildlife: game birds, mammals, almost 100 species of songbirds. Fruit: August - October. Seedlings may be less than 6" or rootstock.

**HAZELNUT, AMERICAN, Corylus americana** - Soil/site: dry sites, often in thickets. Wildlife value: nuts, also called filberts, ripen in late summer and are preferred by numerous mammals, game birds and some songbirds. Mature height: 5-10'.

**MAPLE LEAF VIBURNUM, Viburnum acerifolium** - Soil/site: dry shady locations. White Flowers in June. Fruit: dark purple/black Sept.-Oct. Pinkish to reddish purple fall foliage. Mature height: 6-8'.

**MOUNTAIN ASH, AMERICAN, Sorbus americana** - Soil/site: moist to dry. Spacing: plant each seedling singularly 10-20' apart. Fruits: small, reddish, clustered, about 1/4" late summer into autumn. Mature height: 30-40'.

**NINEBARK, Physocarpus opulifolius** - Soil/site: grows in moist or dry soils, partial shade or full sun. Dense foliage good for nesting birds. Known for its flaky bark. Can withstand deer browse. Abundant flowers May-June. Mature height: 5-10'.

**PLUM, AMERICAN, Prunus americana** - Soil/site: moist to dry. Plant 15 ft. apart for maximum fruiting. Flowers May to June; fruit August to Oct. Used by game birds and mammals. Mature height: 15-20'.

**PLUM, BEACH, Prunus maritima** - Soil/site: dry soils also salt tolerant; Flowers: May-June; Fruit: late summer, purple or yellowish in color, 1/2 to 1" in size. Eaten by mammals songbirds and game birds. Mature height: to 6'.

**PUSSY WILLOW, Salix discolor** - Soil/site: wet soils; full sun. Can grow to 20' if not pruned. Do not plant near water, sewer, or septic pipes.

**ROSE, VIRGINIA, Rosa virginiana** - Soil/site: moist to dry; salt tolerant; Fruit: 1/2 to 3/4" hips remain on plant until following spring if not eaten; Wildlife value: used by songbirds, mammals and upland game birds. Mature height: 4-7'.

**ROSE, WETLANDS, Rosa palustris** - Soil/site: wet soils; Fruit/flowers: flowers pink, hips persistent; Wildlife value: songbirds, game birds and mammals; thicket-forming shrub with slender stems. Mature height: 4-7'.

**SUMAC, FRAGRANT, Rhus aromatica** - Soil/site: tolerates partial shade and acid soils; Uses: excellent cover to stabilize bankings; Fruit: persists into winter; Wildlife value: a favorite of grouse and turkey. Very nice fall color. Mature height: 4-6'.

### THE FOLLOWING ARE AVAILABLE IN PACKAGES ONLY

**SPICE BUSH, Lindera benzoin** - Soil/site: moist to dry; This aromatic plant will tolerate shade but the female plant will produce more berries with some sun. The berries are loved by a variety of songbirds and wildlife. Pretty yellow fall color. Mature height: 5-8' Available in the wetlands package only

**CRANBERRY, EUROPEAN Highbush, Viburnum opulus** - Grows in wet to well-drained soils; spacing for hedgerows 4' apart, singular spacing 10' apart. Flowers/fruit: abundant red berries retained through the winter, eaten by grouse, turkey, deer and numerous songbirds. Plants browsed by deer, rabbits, mice. Mature height: 12-15'. Available in the winter survival package only



### NON NATIVE CONSERVATION SEEDLINGS

Disclaimer: These plants are primarily intended for wildlife and songbird use. Some species may contain toxins harmful to humans if consumed.

The following are 1 or 2-year old seedlings unless otherwise noted. Heights are at least 6 to 12", and are available for the following prices:

Age	Size	Per 10	Per 25	Per 100
1-2 yr.	6-12"	\$15	\$25	\$80

**CRABAPPLE, Malus spp.** - Plant at least 10-15' apart; Fruit: abundant fruit usually persistent through winter. Wildlife value: used by numerous songbirds, game birds and mammals; a small tree. Mature height: 10-25'.

**HAWTHORN, Crataegus spp.** - Size: 10-40'; Soil: moist or well-drained; Use: wind-breaks, screens or shrub borders; Spacing: 5-10'; Wildlife: fruit (persistent through winter) eaten by many songbirds and game birds, rabbit, deer.

**MOUNTAIN ASH, EUROPEAN, Sorbus aucuparia** - A medium size tree up to 30' tall that grows well in dry soils but prefers rich moist soil. Recommended spacing is to plant each tree singularly, 10 to 20' apart. Has large white flowers in the spring. Red-orange berry clusters are valuable food for deer, rabbit, ruffed grouse, and many species of songbirds, especially grosbeaks and waxwings. In fruit late August into winter.

### SPECIALTY PACKAGES

PRICE - \$30 PER PACKAGE

Our specialty packages consist of **25 assorted seedlings** (5 each of 5 different species) color coded for easy identification. Each seedling will average 4 to 12' tall. Each package is a 2' x 3' poly-lined paper bag and will easily fit in the trunk of a small car. **NOTE:** Occasionally we may need to substitute a species within a packet due to crop failure, winter damage or other circumstances beyond our control.

**DOGWOOD PACKAGE** - This package consists of 5 kinds of dogwood shrubs native to NH. All are important to songbirds, providing nesting cover in spring and food sources from early summer through fall. The package contains alternate-leaf dogwood, gray dogwood, red-osier dogwood, silky dogwood and yellow-osier dogwood.

**WINTER SURVIVAL PACKAGE** - This package contains plants which will produce fruit that will remain on the plant into the winter months. This provides wildlife with a valuable survival food source above deep snow cover, through freezing temperatures and strong winds. This package contains European cranberry, crabapple, hawthorn, European Mt. ash, and bayberry.

**NATIVE SPECIES PACKAGE** - This package contains plants that are native to NH (present when European settlers arrived in the early 1600's). These species will grow on average to dry soils. The package contains fragrant sumac, hazelnut, beach plum, Virginia rose and gray dogwood.

**SONGBIRD/WILDLIFE PACKAGE** - This package includes plants that provide seeds and berries that attract birds and other wildlife, whether summer visitors or year-round residents. A valuable source of natural food. The package contains American hazelnut, native grape, Aronia, elderberry, and beach plum.

**WETLANDS PACKAGE** - These shrub species grow well in wetlands and saturated soils, including pond edges and stream banks. They will tolerate surface water during part of the growing season. The package contains silky dogwood, buttonbush, spice bush, wetlands rose, and pussy willow.

**DECIDUOUS TREE PACKAGE** - These trees lose their leaves every fall. The seeds, nuts, or berries they produce are an important food source for a variety of birds and animals. This package contains black walnut, red maple, red oak, silver maple, and paper birch.

**CHRISTMAS TREE SAMPLER PACKAGE** - This package allows one to test small quantities of different species to see which trees will grow best on a selected site. Conifer trees provide cover, nesting habitat, and food for a variety of songbirds and wildlife. This package contains 5 each of the following popular trees: balsam fir, Fraser fir, concolor fir, blue spruce and white spruce.

**SCREEN/WINDBREAK PACKAGE** - These conifers are great for providing a screen or windbreak, as well as nesting habitat and food for birds and animals. 5 each of red cedar, Norway spruce, white spruce, northern white cedar, and Douglas fir will provide visual variety to a screen or windbreak. Plant 8-10 ft. apart.

The Nursery is located on Rt. 3 in Boscawen about 15 miles north of

Concord and 6 miles south of Franklin at :

405 Daniel Webster Hwy  
Boscawen, NH 03303  
(603) 796-2323

### IMPORTANT

For further information regarding your planting needs contact your county UNH Cooperative Extension office listed below.

### COUNTY FORESTERS

<u>County</u>	<u>Name</u>	<u>Email Address</u>	<u>Phone</u>
Belknap			(603) 527-5475
Carroll	Wendy Scribner	wendy.scribner@unh.edu	(603) 447-3834
Cheshire	Steve Roberge	steven.roberge@unh.edu	(603) 352-4550
Coos	Brendan Prusik	brendan.prusik@unh.edu	(603) 788-4961
Grafton	Jim Frohn	jim.frohn@unh.edu	(603) 787-6944
Hillsboro			(603) 641-6060
Merrimack	Tim Fleury	tim.fleury@unh.edu	(603) 796-2151
Rockingham	Greg Jordan	greg.jordan@unh.edu	(603) 679-5616
Strafford			(603) 749-4445
Sullivan	Glenn "Dode" Gladders	dode.gladders@unh.edu	(603) 863-9200



### Shipping Charges

1. New Hampshire 15% + \$8.00
2. East of Mississippi 20% + \$8.00
3. West of Mississippi 25% + \$8.00

### IMPORTANT INFORMATION

Orders are accepted on a first come, first served basis, giving preference to New Hampshire residents. Please indicate first and second choice on the SEEDLING ORDER FORM to avoid delay in case of species sellout. ENCLOSE PAYMENT IN FULL (by MasterCard, Visa, check, or money order) and please be sure seedlings are ordered in quantities indicated. Sorry, *we are not equipped to handle phone orders.*

**Please do not send orders with credit card information by E-mail.**

**Orders cancelled by the purchaser after March 1 will not be refunded.** Orders cancelled at any time by the State Forest Nursery will be refunded. **Refunds due the purchaser for cancellation or other adjustment WILL BE MADE AT THE END OF MAY.**

**All seedlings are shipped in moisture resistant thick paper bags of up to 500 seedlings in each bag.** The bags are no larger than 22 inches in diameter, 36 inches in length, and up to about 35 pounds in weight (**about the size of a large dog food bag**). Average seedling height is measured from the root collar to the top of the seedling.

***Seedlings should be planted immediately upon arrival! Keep the unopened bags as cool as possible and out of direct sunlight until you are ready to plant. If planting must be delayed more than 2-3 days, "heel in" the plants.*** They can also be stored a few days longer in the unopened bag in a refrigerator or cold storage facility. Do not allow them to freeze.

We recommend that you do not fertilize during the first growing season. **Instructions** for care and planting are available from the State Forest Nursery, on our website, or your County Forester. When picking up plants at the Nursery with an open-bed truck you will need to provide protection for the shipping bags. Do not expose them to direct sunlight while in transit.

You may visit us to view the seedbeds weekdays from 8:00 am to 3:30 pm. Tours can be scheduled for groups of 15 or more.

### MAILING LIST REQUEST FORM

If you wish to remain on the Nursery Mailing List for next year or to be included for the first time, please fill out and return this portion to the NH Department of Natural and Cultural Resources, Division of Forests and Lands, 172 Pembroke Rd, Concord, NH 03301.

Name: (last name first) \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

## Conifer Species

Minimum seedling height 6".

All species available in units of 25 for \$20 or 100 for \$55. Some offered in units of 250 (as noted).

- Austrian pine: 3 year 250/\$80
- Pitch pine: 3 year 250/\$80 🍌
- Red pine: 3 year 🍌
- Scotch pine: 2 year
- White pine: 3 year 250/\$80 🍌
- Norway spruce: 3 year 250/\$85
- White spruce: 3 year 250/\$85 🍌
- Red spruce: 2 year (25 only) 🍌
- Douglas fir: 2 year
- Balsam fir: 3 year 🍌
- Concolor fir: 3 year (25 only)
- European larch: 2 year (25 only)
- Japanese larch: 2 year 250/\$85

## Mixed Species Packets

- **Pollinator Packet #1** \$60  
Contains 30 each of the following (90 plants): Virginia rose, highbush cranberry, silky dogwood.
- **Wildlife Habitat Packet #2** \$30  
Contains 10 each of the following (30 plants): gray dogwood, silky dogwood, northern white cedar.
- **Long Island Packet #3A** \$30  
Contains 10 each of the following (30 plants): bayberry, beach plum, eastern red cedar.
- **Riparian Packet #4** \$60  
Contains 20 each of the following (100 plants): silver maple, wetland rose, red oak, white spruce, pussy willow.
- **Ruffed Grouse Packet #6** \$60  
Contains 10 each of the following (60 plants): red stem dogwood, silky dogwood, black cherry, white spruce, pussy willow, birch.

*\*The nursery reserves the right to make species substitutions when necessary.*

## Containerized Stock (small plug)

**Limited supply; order by phone only.**

50 for \$45; Minimum height 6"

Balsam fir 🍌, blue spruce

## Hardwood Species Height 5"-14".

25 for \$30; 100 for \$70 (except as noted).

- Black walnut: 2 year 🍌
- Butternut: 2 year (25 only) 🍌
- Hybrid poplar: 1 year
- Flowering dogwood: 2 year 🍌 🍌
- Red maple: 2 year (25 only) 🍌
- Silver maple: 2 year 🍌
- Sugar maple: 2 year (25 only) 🍌
- Bear oak: 2 year 🍌
- Bur oak: 2 year (25 only) 🍌
- Chestnut oak: 2 year (25 only) 🍌
- Red oak: 2 year 🍌
- White oak: 2 year (call for availability) 🍌
- Black cherry: 2 year 🍌 🍌
- River birch: 2 year 🍌

## Shrubs and Small Trees

25 for \$20; 100 for \$60 unless noted; Min. height 5".

- Beach plum: 1+ year 🍌 🍌
- Highbush cranberry: 2 year 🍌 🍌
- Arrowwood: 2 year 🍌 🍌
- Northern bayberry: 2 year 🍌
- Bristly locust: 2 year 🍌 🍌
- Buttonbush: 2 year (25 only) 🍌
- Northern white cedar: 2 year (25 only) 🍌
- Gray dogwood: 2 year 🍌 🍌
- Red stem dogwood: 2 year 🍌 🍌
- Red osier dogwood: 2 year (rooted cutting) 🍌 🍌
- Silky dogwood: 2 year 🍌 🍌
- Prairie willow: 1 year 🍌 🍌
- Pussy willow: 1 year 🍌 🍌
- Sandbar willow: 1 year 🍌 🍌
- Streamco willow: 1 year
- Eastern red cedar: 2 year (25 only) 🍌
- Rugosa rose: 2 year (25 only)
- Virginia rose: 2 year 🍌 🍌
- Wetland rose: 2 year 🍌 🍌
- Winged sumac: 2 year 🍌 🍌
- Witch hazel: 2 year 🍌 🍌
- Nannyberry: 2 year 🍌 🍌
- Winterberry: 2 year 🍌 🍌
- Wild grape: 1-2 year 🍌 🍌
- Sand cherry: 2 year (25 only) 🍌 🍌



Department of  
Environmental  
Conservation

## WILLIAM F. FOX MEMORIAL SARATOGA TREE NURSERY

Tree and Shrub Seedlings for  
Planting in New York State

# 2020

January 2 – May 15



### Trees and Shrubs...

- Improve air and water quality
- Stabilize streambanks
- Create windbreaks and conserve energy
- Reforest idle land
- Produce wood products
- Provide food and shelter for wildlife
- Improve aesthetic value of the landscape

[www.dec.ny.gov/animals/9395.html](http://www.dec.ny.gov/animals/9395.html)

The Department of Environmental Conservation operates the State Tree Nursery in Saratoga Springs. The nursery produces tree and shrub seedlings for conservation plantings on private and public lands using New York seed sources when available. Available to NY residents and residents of bordering states.

## 2020 Ordering Information

See our website [www.dec.ny.gov/animals/9395.html](http://www.dec.ny.gov/animals/9395.html) for species descriptions, availability, pictures and order forms.

Before ordering, consider specific space requirements for each type of tree:

Species	Spacing in Feet	Trees/Acre
Wildlife	6 x 6	1,210
Conifer	8 x 8	680
Hardwood	12 x 12	300

For Christmas tree planting, allow enough distance between rows to accommodate two to three feet of growth plus the width of mowing equipment.



## How to Order

### By Phone:

Order seedlings from January 2 through early to mid-May by calling **518 587 1120**, Monday-Friday, 8 AM to 4 PM. This is the best way to order because operators will have the latest availability information.

Operators can answer questions or direct you to the proper office for other information. An order will be completed over the phone and an invoice will be sent to you via mail for your signature and payment.

### By Mail:

Complete the order form on our website at: [www.dec.ny.gov/animals/9395.html](http://www.dec.ny.gov/animals/9395.html)

Send it to:

NYSDEC Tree Nursery  
2369 Route 50 S  
Saratoga Springs, NY 12866-4771

**Do not send payment at this time.** An invoice will be sent to customers, who must sign and return it within 10 days along with a check or money order to complete the purchase unless other arrangements have been made.  
**DO NOT SEND CASH.**

**SAVINGS: Order 1,000 or more seedlings of one species (if available) and receive 10% discount for that item.**

## Icon Key

### Pollinator Pros

Native plants that support pollinators.

### Baby Bird Feeders

Native plants that support a large variety of insects. 96% of our songbirds rely on insect larvae to feed their young.

## Shipping Options and Instructions

Please make shipping arrangements when you place your order. There are three options:

1. Pick up your order at the Saratoga Tree Nursery, located just south of Saratoga Springs on Route 50, approximately 30 miles north of Albany. You will be notified by mail when your order is ready.
2. Preferred method: For a fee, seedlings are shipped by designated truckers to a single location within certain counties. Customers pick up their orders at designated locations on pre-determined dates. These dates are not set until early April. **Do not choose this option if you need delivery by or on a specific date.** Orders shipped this way are given preference over option #3. **Orders must be placed by March 31, 2020 for this option.** See our webpage for drop off locations
3. UPS delivery: Limited to customers who need shipment on a specific date, or who place orders after March 31, 2020. Fee per order: \$5.00 plus 20% of the total bill or \$20.00, whichever is higher. Orders placed after May 1 must be picked up at the nursery.

Mail requests are filled after January 2, in the order received. Species sell out quickly, so order early.

Shipments are sent mid-April through early May. Exact shipping dates are weather dependent. Seedlings should be planted as soon as possible. Until planted, keep seedlings cool and out of direct sunlight. Don't let roots dry out.

For **technical advice only** on your planting project, contact your regional forestry office (found at [www.dec.ny.gov/about/27790.html](http://www.dec.ny.gov/about/27790.html)), or call the nursery office at 518-581-1439, Monday-Friday, 8 AM to 4 PM.

**To place an order, call 518 587 1120.**



