

MAKING THE VINEYARD A SUSTAINABLE ISLAND

BACKYARDS AND THE STATE FOREST: What Role Should Natives and Exotics Play?

FORUM PROCEEDINGS



Held on Saturday, April 2, 2005
Agricultural Hall, West Tisbury

“Backyards and the State Forest: What role should natives and exotics play?” was the subject of the first forum of the spring 2005 series. It was held on Saturday, April 2, 2005 at the Agricultural Hall in West Tisbury.

This year’s series is entitled “Making the Vineyard a Sustainable Island”. It marked the second year of public forums focused on areas in which the Martha’s Vineyard Commission (MVC) is actively engaged. The first forum in 2005 was part of a larger event, entitled “Sustainability Day”, sponsored and planned by The Polly Hill Arboretum, produced by Megan Ottens-Sargent and Melinda Defeo. The forum was also co-sponsored by the MV Agricultural Society and the MV Chamber of Commerce. Funding for the series was provided by a generous grant from the Edey Foundation. The Organizing Committee included Judy Crawford (Moderator), Mark London (MVC Executive Director), Katherine Newman (Commissioner), Megan Ottens-Sargent (Commissioner; co-producer of this forum), and Linda Sibley (Commissioner; co-producer of this forum). These proceedings were prepared by Judy Crawford and Jo-Ann Taylor. Thanks to Christine Rose and MVTV for videotaping and broadcast of this production.

This first forum dealt with complex issues involving the appropriate use of native and non-native species in both our State Forest and our own backyards.

Approximately 140 interested Islanders gathered in the Agricultural Hall to hear a series of expert speakers followed by a group of local panelists. Following their remarks, the speakers and panelists engaged in a lively discussion with the audience.

The forum was moderated by Judy Crawford and was made up of the following elements:

- Guest speaker, Tim Boland, The Polly Hill Arboretum
- Guest speaker, Tim Simmons, Natural Heritage
- Panel Discussion: Michael Donaroma, Tom Robinson, Allan Keith and Jim Athearn
- A question and answer period



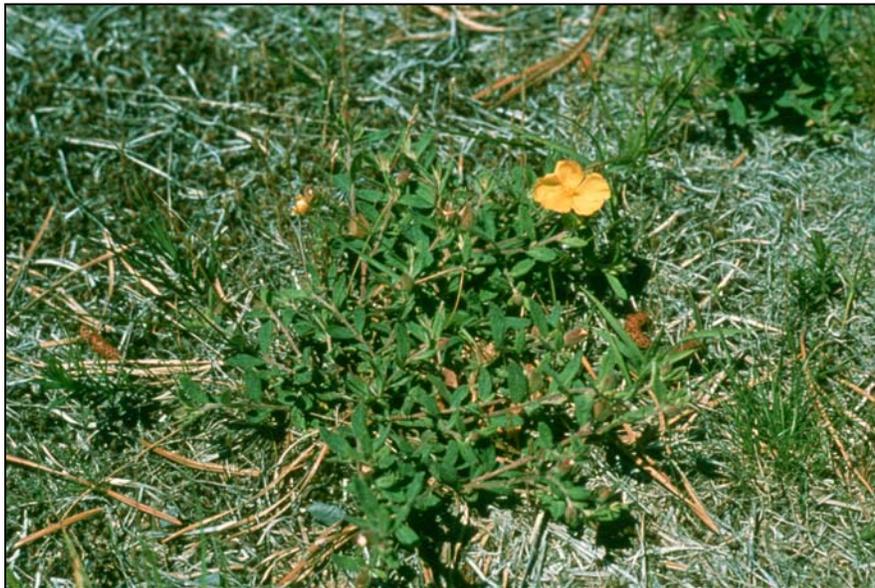
Eastern Silvery
Aster (now Symphyotrichos) concolor
(NHEPS photo)

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Bushy Rockrose *Helianthemum dumosum* (NHESP photo)

DVDs of all forums and written summaries of the proceedings are available in all Vineyard libraries or from the Martha's Vineyard Commission; proceedings are available on the Commission's website at www.mvcommission.org.

Cover photo - NHESP

1. Ecologically Informed Plant Practices – Tim Boland

The first guest speaker was Tim Boland, Executive Director of The Polly Hill Arboretum. Prior to his move to the Vineyard, he was Curator of Horticulture at the Morton Arboretum in Lisle, Illinois. Two of Tim's special interests center on dune systems ecology and the concept of landscaping in harmony with regional ecology. As a direct outgrowth of this latter interest, Tim was a founding member of the Midwest Ecological Landscape Association in Chicago, Illinois. Tim's long list of degrees and credits has prepared him well for his work at The Polly Hill Arboretum.



Tim Boland began his presentation on the general principals of ecologically informed planting practices by sharing some of the history of the Polly Hill Arboretum. Polly moved to the Island at age 50, when she referred to the Island as being "horticulturally challenged." She began her work to diversify the plant population on the Vineyard. Polly introduced plants grown from seed and planted directly into Vineyard soil and developed some sixty new varieties of plants, many named after parts of the Vineyard. A great believer in the survival of the fittest, she applied her Darwinian philosophy and eventually transformed what was originally the sheep meadow purchased with her husband into what is today an arboretum that stands as a destination point for students of horticulture from all over the world.

Tim's work at the Polly Hill Arboretum has given him a broad understanding of the challenges faced by Vineyard gardeners. Challenges to local gardeners include:

- The increasing deer population
- Droughty soils
- Geology that has left us gardening on a giant moraine

Tim urged gardeners to become informed about native species that survive well in local conditions.

Tenants of ecologically informed landscaping:

- Grow plants that are adapted to the area; they take much less work and do better.
- Avoid over use of chemicals and pesticides; good, local plants won't need them.
- Tolerate imperfection; plants may show stress but usually regenerate and become healthy again.
- If you must use pesticides, use non-toxic products first; then apply the least toxic pesticides.
- Eliminate poor performers; sick plants can emit gasses that attract damaging insects.
- Avoid monocultures in lawns; turf grass requires fertilizers and pesticides, resulting in chemical pollution that ends up in ground water and drinking water.
- Eliminate the "industrial lawn"; grow a "freedom lawn."

- Encourage naturalized weeds in lawns; they provide nectar sources for rare insect species.
Suggestion: Get to know your naturalized weeds and come to peace with them.
- Practice “right plant, right place” gardening; select native plants or non-native plants that have adapted to local conditions and that are not hyper-aggressive.
- Evaluate your site and choose your plants correctly; account for sun/shade, acid/alkaline, moisture loving/draught loving.
- Avoid “chemical life support”; minimize use of chemicals.
- Conserve water; mulching practices will help conserve water and keep plants healthy.
- Monitor natural rainfall; sprinkler systems do not need to run in the rain!
- Use slow drip or soaker hoses; release water at a slow rate so it can be absorbed.
- Native grasses or “prairie plugs” make for a drought-resistant lawn; mix them liberally.
- Use plants with a high “bio-value”; these knit together fragmented eco-systems.

According to Mr. Boland, the two greatest threats to bio-diversity are the fragmentation of eco-systems, which leads to habitat destruction, and invasive plants and animals.

To avoid fragmentation of our eco-system, native plants should be re-introduced wherever possible. Conversely, invasive plants need to be eradicated. Insects should also be invited to pollinate and spread native plants. The environment will heal itself if it is allowed to do so.

The danger of invasive plants and animals was highlighted by Mr. Boland, who alleged that of all plants and animals introduced to North America, 15% are harmful to naturally functioning ecosystems. Approximately fifty woody plants are really damaging. With this information in mind, the Polly Hill Arboretum is planning a publication to be released soon entitled, “*Polly Hill Plant Notes*.” This publication will cite the top fifty plants to avoid when gardening.

It is important to develop demonstration native plant gardens in commercial nurseries and in private gardens. These can be used to educate people on how to grow the right plants in the right way.

Offering a natural segue way to the next speaker and topic, Tim Boland concluded his remarks by touching on management techniques in the State Forest. The two areas of greatest interest in managing forests, in an effort to support plant diversity, are fire and the control of animal populations.

Fire is a time-honored catalyst for change. If it doesn’t happen naturally, then humans should put into practice controlled burns to regenerate the diversity of plants in the under story and help certain trees, which only drop their seeds in the extreme heat of fire. Likewise, the overabundance of deer living on the Vineyard are now beginning to eat native plants, thereby creating an imbalance in plant bio-diversity. Even staples such as butterfly weed, long ignored by deer, are now being devoured by deer during drought conditions. In effect, maintaining a balance in the diversity of plant life is key to balancing the eco-system on the Island.



A frost bottom (NHESP photo)

2. Case Study: The State Forest – Tim Simmons

The second guest speaker was Tim Simmons. Tim has a Bachelor of Science in combined science, geology and biology. He has been involved in land stewardship for 20 years. He is currently a Restoration Ecologist with the Natural Heritage and Endangered Species Program at the State level. Prior to this work, he was Director of Science and Stewardship for the MA chapter of The Nature Conservancy (TNC). Concurrently, he was TNC's Regional Fire Manager. He was also the first Executive Director of Sheriff's Meadow Foundation.



Tim opened his remarks by showing a map of rare species of Massachusetts. Hot spots were marked in red. The highest concentrations of rare species in Massachusetts are on the Cape and Islands.

Our State Forest consists of 5,100 acres. Almost all of it is in its natural state, with the exception of the stands of non-native pines and, of course, the airport and the fire lanes. The State Forest contains the highest concentration of rare species anywhere in the State. Something good is going on here, and scientists have spent the last twenty years trying to figure out what that is.



A Melsheimers sack bearer (*Cicinnus melsheimeri*) with lots of personality (NHESP photo)

Several moths occur only here and nowhere else in the State. Some only exist in three places in the whole world, and Martha's Vineyard is one of them. So, indeed, something very special is going on here. The Endangered Species Act as a piece of legislation that has helped to protect these very rare species.

Tim then addressed the issue of native and invasive species. He stated that it was important for scientists and the general public to agree on a rigorous definition of both. He offered this definition for native plants:

"Native means a species which either occurs, or has occurred within Massachusetts; provided that the original occurrence of such species is not the result of a deliberate or accidental introduction by humans into Massachusetts nor are introduced elsewhere which spread into Massachusetts."



Imperial Moth (NHESP photo)

Substitute 'Martha's Vineyard' for 'Massachusetts' and you have a definition that fits our local needs.

Concurrently, he defined invasive species by listing the following series of characteristics:

- Grow and mature rapidly
- Spread quickly
- Have few enemies to control them
- Thrive in many habitats
- Are difficult to control

Tim Simmons continued his discussion of native and invasive plants by stating that pollen and charcoal studies show that there was more fire on the Vineyard prior to the Europeans' arrival than after their settlement. Therefore, to maintain a rich bio-diversity, we should be encouraging the practice of managed burns in the State Forest.



Arethusa, Dragons Mouth Orchid (Arethusa bulbosa) (NHESP photo)

Key elements of good forest management should include:

- Burning – birds, plants and animals thrive following fire.
- Historical context – A book entitled, "Historical Influences on the Landscape of Martha's Vineyard: Perspectives on the Management of the Manuel F. Correllus State Forrest" by

David R. Foster and Glenn Motzkin, should figure high on any recommended reading list of books that clarify how past practices have influenced the present.

- Other considerations - including four important elements
 - Developing a firebreak management plan covering no less than five years
 - Conducting research on different kinds of fuel reduction techniques
 - Restoring at least 216 acres of conifer plantations
 - Monitoring to prevent proliferation of invasive species
- Adaptive Management Plan – this list is sequential and cyclical; after #5, return to #1.
 1. Create knowledge base
 2. Draft Plan
 3. Implement Plan
 4. Monitor and evaluate data
 5. Revise Plan
- Public safety – foremost on the minds of forest managers.
 - Controlled burns can avoid uncontrollable fires.
 - Fuel reduction techniques are important to accomplish this.
 - Houses situated near the State Forest must be protected.
 - Public safety must not be compromised by emotional concerns. They may lead to adequate solutions.
- “Native vs. non-native?” is a perpetual question.
- National context – quotes from “*Pulling Together – A National Strategy for Invasive Plant Management.*”
 - “Invasive plants already infest more than 100,000,000 acres of land in the United States.”
 - “3,000,000 acres are lost each year”



Sandplain gerardia (NHESP photo)



New England Blazing Star
Liatris scariosa var novae angliae

- “Our natural habitats on public lands are being lost at a rate of 4,600 acres a day to invasive species.”

You can see this same national phenomenon happening locally on the Vineyard, but it is not too late here. We are behind the mainland. Therefore, we can stop the invasives from taking over. There is one project underway to limit phragmites on Chilmark Pond. We can't wait for a magic chemical bullet. The keys to eliminating invasive plants are:

- Early detection and early removal
- Education of the general population.



Bittersweet, an aggressive invader (NHESP photo)

Tim concluded his remarks by quoting from S. Reichard & F. Campbell, *“Invited but Unwanted”*, American Nurseryman, 1996.

“Of the 235 woody plants known to invade natural areas in the United States, 85% were introduced primarily for ornamental and landscape purposes, while another 14% were introduced for agricultural uses.”

3. Panel Discussion

Michael Donaroma

Panelist Michael Donaroma is an Edgartown Selectman and the owner of Donaroma's Nursery. He began his remarks by acknowledging that Tim Boland was a huge asset to the Island. Michael was in full agreement with Mr. Boland's remarks about the importance of plant diversity.

As landscapers, working in our own yards, we have the opportunity to expand our horizons. If we plant a hydrangea in the full sun in a sandy soil, it will wilt and dry out every time. But plant a hydrangea in the shade, and it will bloom year after year. One doesn't need to mulch it, water it or fertilize it. In a good acid soil, it will give forth large, blue blooms, even without using aluminum sulfate. It all has to do with putting the right plant in the right place.

Michael moved next to the subject of lawns. He said the Vineyard is moving away from the formal lawns of past. Natural, multi-plant lawns are the healthiest. Cannonball Park in Oak Bluffs allows the dandelions to grow and spread. He said they look great in the spring, and then they are mowed and the lawn is green for the rest of the summer.

Reflecting on Tim Boland's comments about native plants vs. non-native plants, Michael said that he has come to understand that autumn olive, also known as Russian olive, is a mounting problem on the Vineyard. He suggested that it is relatively easy to just put a chain around these plants and pull them out, roots and all. He suggested that people should do this as much as they can. However, he offered no such easy remedy for eradicating such invasives as purple loosestrife or phragmites.

Tom Robinson

The second speaker, panelist Tom Robinson, is a forester and a member of the Tisbury Conservation Commission. With an education in forestry, he has spent fifteen years on the Island working closely in that field. He had a couple of small sawmills, harvested timber in the State Forest, and has gradually gone on to develop a business in residential tree work.



Buck Moth *Hemileuca maia* – NHESP photo

Like Tim Boland, Tom believes in site-specific planting for low maintenance. It is important to pick species that will do well in a particular site and have a good chance of thriving without unusual amounts of attention. Hemlocks, for instance, may provide beautiful screening, but are susceptible to pests. Unless one is willing to treat them every year, they should not be planted. Ninety percent of the success of a tree is picking the right tree for the site. Trees that are not

native are not going to do well here. White spruce is a more northern tree. It will shade out a lot of other trees and plants. White pine is native to all the northeast United States. It likes sandy soil, grows fast, regenerates well, and it is valuable for lumber resources.

Our State Forest has areas known as plantations. These were planted as a part of a long-term agricultural plan, but as Tim Simmons said earlier, this is not a goal here anymore. Today, plantations can be broken up and harvested and still be useful.

Tom concluded his remarks by saying that the State Forest is an underutilized and under appreciated resource. We are very fortunate to have it on the Island.

Allan Keith

Allan Keith, the third panelist, is a naturalist, ornithologist and Honorary Research Associate of the Polly Hill Arboretum. He leans towards the natural bio-diversity of the Island. As the planet goes through warming and cooling cycles over thousands of years, plant habitats enter their own cycles of flux and change. The arrival of Europeans on the Vineyard in the 1600's, launched a radical change.

There were native spruce, white pines, oaks and Atlantic white cedars (now lost.) Since that time, the pace of change has deforested most of the island. In fact, the State geologist's report for 1888 referred to this island as "two thirds un-tillable sand" due to overgrazing of sheep and other domestic animals.

Much has happened since then. However, this overgrazing explains why most trees on the Vineyard are less than one hundred years old. Today, there is a resurgence of forests across the Island. There have also been dramatic accompanying population increases in birds, as well as animals and insects.

Allen urged concerned people to make an effort to erase or at least suppress invasive species wherever possible. However, there is a need for moderation and balance. White spruce (also know as Norway spruce) is not a native species and tends to take over a bit, but it provides habitat for some birds that we probably would not see on the Vineyard otherwise. Many fungi, lichens and insects also thrive in that habitat. Decisions about the introduction of invasive plants here need to be viewed within the contest of a larger balance of nature.

Jim Athearn

Jim Athearn, the final panelist, is a member of the Martha's Vineyard Commission, Vice-President of the Agricultural Society, Vice-Chair of the USDA Farm Services County Committee, and the owner of Morning Glory Farm.

Jim opened by asking the audience to consider the intangible effect of culture and context on peoples' preferences with regard to lawns and plants. In Chilmark, it would be considered appalling to plant a large, manicured lawn along South Road. "Up-island we just don't do things that way." Whereas in Edgartown, a lovely grass lawn with pampered roses climbing along a picket fence is considered perfection.

The idea of whether a plant is truly native or not is not as important as following Tim's recipe: "right plant, right place." Some plants contribute to the welfare of wildlife. Russian olive, for

example, has been touted as an ideal wildlife food source, and yet it has been a problem in other ways.

As man attempts to engineer nature, he often comes up short, and the plan backfires on him. Trying to change what is naturally happening in the wild usually causes unanticipated problems.

Jim Athearn concluded by reminding us all that it is very appealing to have a resource in the center of the Island where future generations of Islanders can extract cord wood, or lumber or wildlife, such as deer and where at the same time they can experience rare eco-systems supporting endangered species that are being faithfully preserved for the future.

APPENDICIES

A1 Planting the Vineyard Way

This article, by Melinda DeFeo, Education Coordinator of The Polly Hill Arboretum and Mark London, Executive Director of the Martha's Vineyard Commission, appeared in the Martha's Vineyard Times on March 31, 2005 and in the Vineyard Gazette on April 1, 2005.

The dilemma facing caretakers of the State Forest is essentially the one we face in our own backyards: when is it appropriate to plant or maintain non-native species? The first forum of the Martha's Vineyard Commission's Spring Series, Making the Vineyard a Sustainable Island, will address this subject.

Some argue that we should systematically restore the Island's native habitat, such as the globally rare coastal sandplain that once covered the, which covered much of the Island (outwash plain). Some favor restoring the farm fields that made up most of the Island a century ago. It is also suggested that the natural process of succession of formerly agricultural land in decline, can create a gradual displacement of one biotic community by another and can eventually lead to a more stable community with a much richer diversity of plant and animal associations . . . as well as do a darn good job screening all the houses built since then.

Which approach to take should involve an understanding of the Island's character, scenic values, history and ecology. For example, understanding the natural communities linking the flora and fauna in an area would help determine the minimal viable habitat to maintain the presence of various species, especially the pollinators that the plants need to reproduce.

In the State Forest, a key question is what to do with the 500 acres of non-native red and white pine that were planted after 1925 in a commercial forestry operation. The red pine are now ravaged by disease and decay. Last year, the State looked into the possibility of bringing in a logging company that would use the revenue from harvesting the white pine to finance removal of the red pine. However, this proved not commercially viable and the State concluded that the red pine should be allowed to die a natural death.

Currently, the Commonwealth has embarked on a two-year process to determine a new management strategy for the State Forest and is looking for public input. Should the white pines, as well as other stands of non-native Norway spruce and Scotch pine, be harvested now? If so, what should replace them? Should we revive the idea of using the State Forest for large-scale commercial forestry? Could we set up a smaller-scale operation to gradually remove at least some of the stands of non-native trees – using the bio-mass for energy production – and then plant more indigenous and diverse species of trees? Should we remove all the trees from some areas to create fields or restore a sandplain habitat?

That takes us back to our own properties. Should we feel guilty if we are dying to plant pink petunias in our backyards? Are large, mowed green lawns appropriate? How do we trade off the

wish for open views and the idealized pastoral image of grassy fields versus the desire to maintain the Island's indigenous biodiversity?

Many people want to grow non-native plants on their properties, to satisfy a particular interest or to create a desired landscaping effect. One could make a case that, with informed choices, this can enrich our environment and do little harm, as long as non-invasive species are chosen. In fact, some non-native species fit well into the Island's ecology. We think of the smell of the beach rose as the epitome of the Vineyard summer but *Rosa rugosa* is actually not indigenous. It is now considered naturalized. However, other non-native species are invasive. Autumn Olive, Bittersweet, Glossy Buckthorn, Norway Maple and Phragmites can aggressively replace the diverse local habitat with a foreign monoculture.

One strategy that seems to have merit for many homes is keeping the areas of non-native species relatively small – with flower and vegetable gardens as well as a limited size lawn area close to the house – and then using native species on the rest of the property. Of course someone wanting to restore native species is faced with the question of what exactly is native. The vegetative community that covered the Island for thousands of years was made up primarily of chestnut, beech and oak, as well as hickory. Today's Vineyard is somewhat different, a tri-culture, dominated by oak, beech and maple, as well as pitch pine and many non-native plants.

With the support of The Polly Hill Arboretum and the Martha's Vineyard Agricultural Society, the Vineyard's "green industry" – nurseries and landscapers – have joined together to form the Vineyard Green Association. Among other things, it will help members choose healthy and appropriate nursery stock, keeping the Island free of disease, blight, and inappropriate invasive species.

During the upcoming forum, Tim Boland, Executive Director of The Polly Hill Arboretum, will introduce the basic principles of ecologically based plant practices and will discuss how homeowners can make decisions about their own properties. Tim Simmons, Restoration Ecologist of the State Natural Heritage and Endangered Species Program, will discuss the options being considered for the State Forest. Local panelists, Jim Athearn, Michael Donaroma, Allan Keith and Tom Robinson will add their perspectives.

Like many other decisions that we will individually and collectively make in the coming years, how we choose to plant will determine whether, in future generations, the Vineyard will continue to maintain its distinct character and environment, or will become more and more like the rest of America.

A2 Native Plants for Use in Buffer Strips or Residential Low Maintenance Landscapes

NATIVE PLANTS FOR USE IN BUFFER STRIPS OR RESIDENTIAL LOW MAINTENANCE LANDSCAPES

These species are suited to planting above the shoreline to provide a runoff absorbing buffer strip. Leave existing vegetation if any or establish a continuous bed of the species listed. Heights given allow selection of plant material to preserve views. *B. Engley & W. Wilcox 1989.*

| <u>3 feet or less</u> | <u>6 - 9 feet</u> | <u>10 - 15 feet</u> | <u>Groundcovers</u> |
|--|--|---|---|
| <i>Kalmia angustifolia</i> Sheep laurel | <i>Aronia arbutifolia</i> Red Chokeberry | <i>Hamamelis virginiana</i> Witch hazel | <i>Arctostaphylos Uva-ursi</i> Bearberry |
| <i>Rhus aromatica</i> Fragrant Sumac | <i>Clethra alnifolia</i> Sweet Pepperbush | <i>Lindera benzoin</i> Spice Bush | <i>Gaultheria procumbens</i> Checkerberry |
| <i>Rosa carolina</i> Carolina Rose | <i>Baccharis halimifolia</i> Groundsel Bush | <i>Vaccinium corymbosum</i> Highbush Blueberry | <i>Gaylussacia brachycera</i> Box Huckleberry |
| <i>Salix tristis</i> Dwarf Grey Willow | <i>Ilex verticillata</i> Winterberry | <i>Rhus copallina</i> Shining Sumac | Grasses (unmowed meadow) <i>Andropogon scoparius</i> Little Bluestem |
| <i>Vaccinium angustifolium</i> Low Bush Blueberry | <i>Lyonia mariana</i> maleberry | <i>Rhus typhina</i> Staghorn Sumac | <i>Festuca varieties</i> Hard, Sheep & Creeping red Fescues |
| <i>Ilex glabra compacta</i> Compact Inkberry | <i>Malus sargeni</i> * Sargent Crab | <i>Amelanchier canadensis</i> Shadblow | <i>Panicum virgatum</i> Switchgrass |
| <i>Comptonia peregrina</i> Sweet Fern | <i>Myrica pennsylvanica</i> Bayberry | <i>Amelanchier laevis</i> Alleghany Shadbush | <i>Ammophila breviflulata</i> American Beachgrass (sand/dunes only) |
| <i>Gaylussacia baccata</i> Black Huckleberry | <i>Prunus maritima</i> Beach Plum | <i>Ilex glabra</i> Inkberry | Grasses: Mowed Lawn Creeping red fescue |
| <i>Amelanchier stolonifera</i> Creeping Shadbush | <i>Rosa virginiana</i> Virginia Rose | Over 15 Feet <i>Acer rubrum</i> (red maple) | Invasive Pests (do not plant) <i>Eleagnus umbellata</i> (Autumn olive) |
| <i>Aronia melanocarpa</i> Black Chokeberry | <i>Ilex opaca</i> (holly) | | <i>Rosa multiflora</i> (Japanese rose) Various spreading Bamboo Species <i>Phragmites maxima</i> (Common reed) |

As a general rule, do not transplant from existing natural settings. Native plants are increasingly available in nurseries.
* Non-native but worthy plant material.

A3 Useful References and Links

The following websites may be perused for further information on Tim Boland and Polly Hill Arboretum, on the Commonwealth's Natural Heritage and Endangered Species Program, and on recent fuels management in Massachusetts. Much useful information resides there, including many downloadable reports, and links to related sites.

For Tim Boland and Polly Hill Arboretum:

<http://www.pollyhillarboretum.org/>

For the Commonwealth of Massachusetts Natural Heritage & Endangered Species Program:

<http://www.mass.gov/dfwele/dfw/nhosp/nhosp.htm>

For descriptions of recent fuels management in Massachusetts:

http://www.umass.edu/nrc/nebarrensfuels/ma_barrens/index.html

For listings of invasive plants:

www.mass.gov/agr/farmproducts

<http://www.pollyhillarboretum.org/invasiveplants.shtml.htm>



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