

## ***So you like Newport's magnificent beeches . . .***

***Then please help take good care of them. Be on guard against phytophthora, which cause bleeding cankers that destroy beeches' circulatory systems. Also, protect their fragile roots and trunks against other pests, drought, soil compaction, and sun scald. Be part of community efforts to enjoy and protect them. Plan ahead for their replacement as they become old.***

*By David W. Brown, Commission member 2002-09, and Scott Wheeler, Newport Tree and Parks Supervisor*



### ***Elegant trees and foliated***

***groves*** of contrasting colors and textures are a big part of why people visit us here in Newport, Rhode Island. They are greeted by the "Liberty Tree" beech when they arrive on Farewell Street. Visitors see other notable trees as they drive past the Redwood Library and the Art Museum down Bellevue Avenue. And still more when they stop at estates like Kingscote, The Elms, and Chateau-sur-Mer along the

way. The trees that many visitors enjoy most are the European Beech trees (*Fagus sylvatica*), with their low-spread branches ... distinctive smooth elephant-skin-like bark ... nice dense shade ... long-lasting golden Fall leaf displays ... interesting copper, purple and fern-leaf variations ... spooky understories of weeping beeches that kids love to explore ... intricate bare limbs and twigs that highlight our winter scenes.

We Newporters love beeches too as we walk, run, bicycle and drive past them. Besides Bellevue Avenue there's hardly a side street or park where we can't see one in the background. Real estate people emphasize how beeches and other quality trees add much to property values. Not to mention our squirrels and the delight they take in finding and stowing away tasty beechnuts.

### **But we shouldn't take our beautiful beeches and other trees for granted**

We tend to assume that the wonderful specimens which have been there for decades will always be there. No matter how old they get, what pests and storms they encounter, or how badly we treat them. It's not always easy for a tree in Newport to grow up and be in good health for a long time. Our climate is moderate but there can be long drought periods. Many of our trees are rooted in soil that is shallow, infertile and poorly drained. Branches often have to endure Nor'easter windstorms, and sometimes hurricanes. Trees near the ocean can be covered with salt spray.

Disease and insect pests have devastated some traditional tree species like elms and chestnuts, and new kinds of pests are coming here to southern New England.

Besides natural problems, a Newport tree has to try to survive what *people* can do to it: Being planted too deep in a hole that's too small. Bad pruning practices. Fumes from vehicle traffic. Road salt when there's snow and ice. People and cars tromping on and compacting the soil on its roots. Lawn mowers and weed eaters scarring its trunk. Excavations through its root area to make way for a building foundation, street curb or underground utility line. Streetside trees are likely to find themselves being severely "topped" (major limbs cut off mid-way) to make space for tall trucks and overhead utilities. No wonder the average urban tree lives fewer years than its cousins in more natural wooded settings.



The broader picture is that a tree's roots, trunk and branches, and leaves—along with its soil, water, and air environment—form a ***delicately balanced system***. Imbalances can lead to a spiral of decline. Human stewardship can help a lot. But it may not take much by way of ill advised branch removal, soil compaction, root cutting or other intrusions for a beech's health to be seriously jeopardized.

### **Bleeding canker—the new pest on the block**

While less susceptible than some tree species, European beeches can be seriously damaged by several insects and diseases. Tree experts are now urging Newport beech tree owners and caretakers to take special precautions against infection by a group of organisms called ***Phytophthora*** (which are fungi-like but which botanists link more closely to algae). These take advantage of weaknesses in tree health—insect infestations, drought, damage to limbs or roots, old age decline, and other causes—and can lead to quicker death of your valued beech.

*Phytophthora* destroy the tissues beneath the bark. The outward sign—reddish or dark brown oozing—is bad enough. But inside, they cause very serious damage to the beech's circulatory system (the xylem and phloem layers beneath the bark). Moisture and nutrients from the roots can no longer make their way up to the leaves in the canopy. This leads to less photosynthesis, leaf and bud dieback, sensitive beech limbs exposed to the sun, and a generally weakened system.

The *Phytophthora* attacks in themselves are not the only source of damage. The lesions and seepages attract certain beetles, other insects, and pathogens that might otherwise have left the stricken beech alone. And this in turn worsens and speeds up the tree's decline. demise.

How do *Phytophthora* reach European beeches? Arborists and tree researchers still aren't entirely sure. Any of several *P.* species and strains may be the villains here in the Northeast. Some enter through the root system and move up into the trunk. Others splash up from puddles when it's raining, or when the tree is being irrigated, and enter the lower trunk through insect wounds and damaged bark areas. The spores may land on the beech's own trunk and limbs, or on nearby plants. Some of those plants may themselves be prone to infection (English oaks, tulip trees and rhododendrons, among others). Wind and rain may carry those spores onto beeches.



*Phytophthora* infection often shows up as seepage like this.

People may unintentionally spread *Phytophthora* also through purchase of infected plants from unreliable sources, use of infected tools, or transport of soil and landscape debris.

What to do if it appears that *Phytophthora* have infected your valued beech or a nearby plant? First, with help from a certified arborist and perhaps laboratory analysis, *find out for sure what pathogen it really is*. For some types, a phosphorus-based solution applied to infection-prone areas *may* reduce further spread. Even then, a good arborist will probably tell you that it's not a sure thing. She or he will tell you also that, just as with a person who's ill with a disease, *it's important to see that the beech has good nutrition and other natural conditions conducive to better health*. Don't be misled by ads that chemical treatments or other heroic measures are sure cures for all such infestations.

### Our beeches face some other special challenges

The European beeches in Newport are better adapted to urban life than are their woodland cousins (the American beech, *Fagus grandifolia*). But they still crave care that tries to recreate the natural conditions of their origins.

For one thing, **beech roots are fibrous and shallow**. This is good for absorbing moisture, but makes the roots easily damaged. Just a few people trampling on them regularly can do harm. Not to mention the frequent practice of parking cars and pickups under beeches for their cooling shade.

**Beeches need lots of water**. They are one of the tree species that do need watering when there is a long drought. Beeches suck up a lot of moisture to sustain their dense foliage.

This along with their dense shade makes it almost impossible to sustain grass turf or other cover plants beneath beech canopies. The best groundskeepers in Newport are emulating natural duff by spreading two or three inches of **organic mulch** (such as partly decayed leaves) under their large beeches and other specimen shade trees. They make sure not to heap up mulch against the trunk base or over the brace roots. That could lead to rotting, rodent damage, and impaired trunk ability to bring water and nutrients up to the leaves.

As other specimen tree species, beeches **should be pruned only as need be**, by experienced persons. There are valid reasons to do some trimming—e.g., removing a limb that is rubbing against another, hanging too low over a street, growing too near a building, or damaged from a storm. But tree experts are now less inclined than earlier to thin out branches heavily.

**Beeches are very thin-skinned!** The smooth bark on a beech-tree trunk and branches can easily be damaged by scrapes and cuts. If the bark is exposed directly to the sun, harmful scalding can take place. So it's important not to prune so heavily that lots of foliage which shades the bark is removed; removal of dead and broken branches should be the main aim. Planting some other trees and shrubs to help shade the southern exposures of a beech trunk can be a way to reduce sun damage.

Besides *Phytophthora*, **woolly aphids** are a second pest that may infect our European beeches. These are a cottony-covered insect that emerge in late spring. They suck nutrients from young twigs and the undersides of leaves. They often cause some leaves to curl up and dry out, but this usually does not damage beeches seriously. (In contrast, the aphids and adelgids that attack hemlocks and some other trees can be serious.)



Sun and signs have battered the trunk of this poor old beech.

The woolly aphids do excrete a lot of unpleasant, sticky honeydew. In turn, sooty mold that feeds on the honeydew may appear on the leaves. Beech owners who find this too objectionable can ask certified arborists to try to reduce aphid infestations with insecticidal soaps or other non-hazardous treatments.

**Winter moths** are a third pest to be on the alert for, even though they seem to like fruit trees, maples and some other species more than beeches. These moths have shown up in eastern Massachusetts and in Rhode Island in recent years. They emerge from the soil in late fall, and lay eggs in tree bark and other crevices. In early spring, the eggs hatch into larvae that turn into small caterpillars that devour new buds. Professional applications of horticultural oils before the eggs hatch have helped to reduce some infestations.

Researchers are working on biological means to control winter moths and some other insects. Nothing is very sure yet. The main way that Newporters can create defenses against these and other new pests is to provide our trees with good natural growing conditions that lead to vigorous health!

***If a valued tree of yours is having health problems, Scott Wheeler, Newport's Tree Warden, urges you to remember this above all:***

- 1. Do no harm! Within the root zone, don't excavate, compress soil, or change water flows, unless you really know what you're doing.**
- 2. Assess the cultural setting of your tree. Are you trying to force it to live in tough surroundings? Try to replicate natural conditions.**
- 3. Intervene with caution and only if you really know what you're doing, preferably with guidance from a certified, licensed arborist.**
- 4. Do the math. Is it wiser to spend more on this ailing tree, or to replace it with a young tree better suited to the surroundings?**

## **Beeches, especially our older ones, need helpful community surroundings**

Many of Newport's beeches were planted during Newport's "gilded age" of large estates and legions of gardeners who could give careful care to flowers, lawns, shrubs and trees. Many of these specimens are now more than a century old; they are into old-age decline. Estate grounds aren't so spacious as before. Buildings, walkways and driveways are squeezing into the canopy and root spaces of these large trees.

Amid pressures for land redevelopment and intensification, people are cutting down some of these grand old beeches sooner than they have to be. Other beeches have become so neglected, damaged or hemmed in that they might best be removed and replaced with young plantings.

Happily, we have quite a few mature beeches that—with careful



*Please don't tromp on beeches' toes!*

guidance from certified arborists—can be rescued and nurtured into years and even decades of extended life. But this has to be matched with two other ingredients:

1. **Owners’ and developers’ appreciation** of the value of sustaining these beeches (both aesthetic and economic), and readiness to provide the needed investments and protections. To encourage this, the Newport Tree Society and the Tree and Open Space Commission have initiated a “Tree of the Year” contest, and also “Newport Arboretum” programs of tree walks, tree tagging, and on-line learning about our most special trees.
2. **Community policies** that encourage this—like minimizing the digging of trenches for utilities, curbing, etc. through tree root systems ... planning and zoning that foster “green” construction and spaces which are friendly to specimen trees, greenscapes, and natural drainage.

Individually, we can encourage good care of beeches in our vicinity. When we see a neglected beech, we can tell the owner how much we enjoy beeches, and help him or her in a friendly way to get in touch with arborists who can give it good care. We can exert positive influence toward timely attention to beeches and other valuable trees via our neighborhood and condo associations, garden clubs, preservation societies, and other groups.

## Replace declining beeches with more beeches?

When an older beech finally has to be removed, should another European beech be planted on that site? Maybe yes, maybe no. Several factors enter in:

- Will there be enough permeable space and a compatible natural setting in future decades?
- Will another beech fit into the projected landscape scheme so well as one of the new tree varieties that are becoming available?
- It might be good to diversify tree species in the neighborhood, to guard against your “urban forest” being wiped out by some unexpected pest?



*Improved, compact beech cultivars have become available.*

If an old beech has been near a street, its replacement might well be set back in a nearby yard. That way, less damage from traffic, trench digging, road salts, etc. is likely. In fact, the Newport Tree and Parks Division has a **Street Tree Planting Program** that encourages this. A property owner who cooperates can choose one or more young trees from a list of improved varieties that fit Newport. Most of these fit smaller spaces, and are more pest-resistant, than traditional trees. Trained staff plant and help them get started. In return, the owner provides space back from the street, pays a modest price for the tree, and agrees to take good care of it as a Tree Steward. For more, see [www.cityofnewport.com](http://www.cityofnewport.com), then Department, then Public Services, then Trees, then Bare Root Tree Program.

If your own yard is not huge, you might consider planting one of the more **compact beeches** that good nurseries in our vicinity have begun to sell. Two that have been featured in recent Tree Society sales are the Rivers Purple Beech (grows to 50 feet tall) and the smaller, narrower Purple Fountain Beech (grows to 20 feet).

**Beech hedges** are another way to add some attractive beech “flavor” to your summer and fall foliage. They endure regular trimming better than many woody species.

Even if you have just a tiny space, a beech of your very own can become a great part of your life. **Bonsai** lovers find that beech stock can make a wonderful outdoor specimen. It can last a long time. One can consider many interesting species and subspecies, including Oriental beeches as well as European and American.



*A beech hedge can add nice color and texture even in the winter.*

### **All beech wood needn't go to waste**

Most of us feel sad when an elegant old beech tree finally has to be cut down, and its huge limbs and trunk are being trucked off across one of our bridges to “someplace.” Does that have to be the end of that beech’s career?

Not necessarily. With its low branches and lack of a tall main trunk, a beech is not in much demand for lumber. But it has some great qualities for wood crafts and manufacturing—hard, fine grain, very white, not gummy or strong-scented. It’s used for making furniture, parquet flooring, veneer plywood, work benches and mallets, wooden toys. One “lower” use is railroad ties. Cured for a year or so, it makes good firewood.

So if you have uses like that, or know people who might, you might try to work out something with the tree service so that your old beech isn’t just tossed away. It’s reported that one Newport resident loved her beech tree so much that, when it finally had to be removed, she had dinner plates made from the wood to share with others as lasting legacies of a tree life well lived.

**For more information** see, among other sources:

[www.newporttreesociety.org](http://www.newporttreesociety.org) The Newport Tree Society is a strong advocate for beeches and other specimen trees. Its web site tells about several local initiatives to encourage this. It has links to reliable technical information about community tree selection and care. See especially the *Newport Daily News* article (Nov. 4-5, 2010) on recent Bartlett Tree Expert research findings about *Phytophthora* and other aspects of beech care .

[www.branchingout.cornell.edu](http://www.branchingout.cornell.edu), then Back issues, then June 13, 2008 issue, then Feature. Cornell University plant specialists are providing leadership in tracking and researching *Phytophthora* attacks on European beeches here in the Northeast. This article from Cornell’s publication, “Branching Out”, provides a 2008 update. More technical and recent updates are at [www.reeis.usda.gov](http://www.reeis.usda.gov), then search “phytophthora in beech”.

[www.urimga.org](http://www.urimga.org), then Links. This web page has links to sites related to trees, plants and horticultural practices that URI Master Gardeners have found especially helpful.

[www.angliangardener.co.uk](http://www.angliangardener.co.uk), then Plants, then Hedging Plants & Hedges, then Beech. An interesting English slant on European beeches as possible hedges.

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