Nagog Hill Orchard Vision Statement:

My vision for the agricultural (APR) acreage at Nagog Hill is to create a container-based native tree and shrub farm, utilizing modern air-pruning containers, pot-in-pot, and root-maker containers—a native tree and shrub production facility that *does not* mine away the existing soil, but grows its plants with superior root systems in containers filled with a composted wood chip potting soil mix.

The benefits of growing seed-propagated native trees and shrubs for local ecosystems are immense. Compared to the typical clonal production of non-native nursery selections, native species provide crucial ecological services. Demand for native plants has surged as awareness of their benefits grows, particularly in urban and suburban areas. Communities across Greater Boston are increasingly requiring the use of native species in tree replacement for construction and wetland restoration projects. Traditional nursery production methods are often ill-suited for native species like hickories, oaks, sourwood, black walnut, and chestnut. Air-pruning container production offers a solution by overcoming many of the challenges associated with growing these species and meeting the rising demand.

Along with producing native trees and shrubs, I want to plant several acres for permaculture fruit and nut trees and shrubs. Paw paw, hybrid chestnut, hazelnut, blueberry, red mulberry, blackberry, etc for low to no pesticide fruit and fruit tree production. Paw paw is a gem of a North American native fruit tree that is becoming ever more popular with local gardeners. Unlike all the fruit trees presently on the site now, paw paw attract almost no pests or diseases and so require little to no pesticide inputs—even deer seem to have no interest in them! This fruit producing section would serve as a public accommodation providing pick-your-own fresh, local fruit.

In addition to growing native trees and shrubs, I aim to support ongoing efforts to breed pest-resistant varieties of ash, hemlock, elm, chestnut, butternut, and beech trees. These species are under threat from introduced pests and diseases, and several research groups are working to develop genetically resistant solutions. I hope to contribute to this important work through our farm by inviting active scientific collaboration with leading researchers and citizen scientists where possible.

Lastly, I want to incorporate traditional practices like hedge laying, pleaching, coppicing, and espalier into the landscape. These ancient techniques are being rediscovered and adapted for modern use, offering both commercial and educational opportunities. For example, a laid hedge of native plants can serve as effective deer exclusion infrastructure while also providing dense habitat for birds and tremendous support for wild, native bees.

A tree farm along with the other tree-centric uses I listed above would, in many ways, align quite nicely with the historical orchard use. We would mostly just be trading rows of trees for rows of *different* trees. Most of these the container trees will live onsite for 2-6 years, and in that time they will be a part of the local ecosystem producing flowers, homes, and food for all the birds and pollinators that share a niche with these native species. The reality of apple and stone fruit orchards in New England (Organic or not) is that they are pesticide and fungicide intensive ecological deserts—valuable food for humans but virtually no value for the rest of our ecosystem. Conversely, my crops will contribute to the local environment though their ecological relations and amazing beauty. The diversity of the farm trees and shrubs with all their different flowers and foliage will be a sight to see all year long. A tree farm with a wood chip composting site and poly tunnels may be a little busier than how it has been used in previous decades, but it will also be a thorough break from the intensive spraying that goes with fruit trees. It appears to me that most, if not all, of the contemporary and successful fruit orchards become pick-your-own, goat rodeo, donut circuses every fall precipitating an intense boost in local car trips in a short period of time; my use earns its way in the world without that neighborhood disruption.

I would seek to use my trees and shrubs to make the neighborhood even more beautiful by planting many roadside trees to help calm the local traffic and obscure any of the working infrastructure of the farm, while paying close attention to not obscure any of the amazing vistas that presently exist. One of the amazing aesthetic aspects of the land is the ‘big sky’, I love and value this aesthetic and will preserve it absolutely.

Partial Plant List

Oaks
Hickories
Sassafras
Black Walnut
American Hornbeam
Persimmon
Eastern Redbud
Northern Red Oak
Kentucky Coffeetree
Eastern Red Cedar
Hackberry
American Basswood
Black Gum
Sourwood
American Hophornbeam
Carpinus caroliana
Striped Maple
Taxodium
American Chestnut & Hybrid Chestnut
Paw paw
Rhus
Red Mulberry
White birch
Yellow Birch
Black Birch
Corylus & Hybrid Corylus
Hybrid Chestnut
Button bush
Ruby clethra
White fringetree
Sourwood
Black gum
Spice bush
Calycanthus
Scrub Oak
Willow
Poplar

Education and Cultural Enrichment

Included in the vision for the tree farm is to use the land to train and develop more skilled and talented people for the preservation, restoration, and harmonization with our local native ecosystems and habitats. This would mean leading hands-on workshops and hosting experts for lecture series on the relevant subjects: plant identification; woody plant propagation, growing and installation; coppicing, pollarding and hedge laying; nature awareness and wildlife tracking; primitive technologies that make use of the permaculture products like basket weaving and plant fiber arts; tree and nature inspired art and expression; wild foods foraging and preparation; and primitive fire skills. In a previous life, I was on the educational staff for a primitive skills based summer camp in VT throughout the 1990's and have led many wildlife tracking and primitive skills workshops in other settings since then. Primitive and nature skills are a wonderful way to learn how to better harmonize our modern lifestyles with the natural world.

The farm would also serve as a living classroom, with model mini-forests, Miyawaki forests, living fence deer exclosures, coppice fields, low-input fruit groves, and other permaculture plantings serving as demonstration plots. These areas would provide tangible examples for property owners to visualize alternative landscape uses and displace the residential landscape industries' usual suspects in ecosystem destruction like turf grass and hyper-mulched planting beds with their leaf blowing and chemical requirements.

Classes and lectures would be open to the public, with special sessions tailored for local school groups. The middle level of the lower barn, once cleaned, is the ideal space I envision for indoor classes and workshops.

Existing Apple Trees

Throughout my many conversations with various folks about Nagog Orchard, everyone asks about the fate of the existing apple trees. My frank opinion is that the trees, except for a small handful, are not very special. I have found no evidence that there are any rare or noteworthy varieties that would justify the significant time and financial investment required to restore them. The current varieties are highly susceptible to the very pests and diseases, which led agricultural professionals to develop the modern, resistant cultivars we use today.

I have pondered leaving some of the apple trees along the roads as an aesthetic nod to the history of the land, and there is obvious merit in this idea. The problem is that we are still talking about a few hundred trees on a significant amount of the APR land that would need to be managed if they are going to be actual producing trees and not just ornamentals—I think leaving them as ornamentals creates a conflict with the APR covenant. From a physical labor consideration, managing them will be too costly in terms of contemporary wages and worker's comp insurance for anyone working above a 10-12 foot height, and managing them chemically for their manifold pest and disease issues is just not something I am willing to do. The vision is to convert the Nagog land into an ecological health center that serves its local ecology, teaches guests about its operations, and produces the plants and technology needed to help heal more land; trees that require heroic levels of pesticidal and fungicidal applications simply don't align with that plan and create a liability concern for youth groups being on the property. I plan to have pesticide applications be a sparing to non-existent part of that land, my time there, and in the lives of my employees and guests. If MDAR is willing to allow several hundred feral apple trees to persist along the roads then more of a case could made to save them, but they are still going to look unhealthy with scab, rust, and fireblight—often defoliated by late July.

During my most recent visit to the orchard, I conducted an assessment of the existing apple trees, and found that most of the roadside trees are not only in poor health but also in poor aesthetic condition. The triple row of apple trees between the big barn and Nashoba Road stands out as the best group—these trees are more aesthetically pleasing, in better physical condition, and more closely connected to the barn and its history as the heart of an old apple orchard. I am willing to invest the time and money to prune and preserve this group of trees for their historical and aesthetic value chemical interventions will remain minimal.

Wood Chip Use & Storage

Wood chips are a staple mulching material on contemporary orchards and farms. They are a clean green-industry byproduct that, when used as a mulch or soil constituent, contributes to soil building, increasing soil carbon, and atmospheric carbon sequestration. Sheet mulching with woods chips is an effective, non-herbicidal weed suppression method. There is a lot of area across all the fields that require invasive woody weed management. . . ongoing. . . ad infinitum. Wood chips will always be needed for that purpose. The permaculture areas, especially the ones with the more slope, will require a lot of sheet mulching with mostly raw wood chips to create planting beds for the woody tree and shrub installations.

Rotted wood chips are a great feed stock for the potting soil needed for the container production portion of the tree farm. Chips are advantageous because they are locally produced and they don't carry pathogenic pheretimoid earthworms—the last thing we want to do as a producer of native trees is to become a vector for Asian Jumping worm distribution to our client's properties. Introducing off-site compost or soil has become very fraught with risk for transmission of Asian Jumping worms. Until or unless better methods for managing pheretimoid earthworms is developed, stopping the spread by simply not moving them around is the best plan of action. Taking in freshly chipped wood and letting it passively decay in piles for several months is the safest way for us to go at this time when creating container soil. Wood chips are often used as a woody plant, container soil substrate in place of peat moss in the tree nursery business.

Peat moss has many sustainability problems (mining out of a limited resource, mine site despoliation, and shipping) and the nursery industry is working assiduously to displace peat moss in the commercial potting soil mixes for good reason.

I imagine the most appropriate place for storage and processing of wood chips would be close to the big barn and should be positioned in such a way that they are out of site from the roads and the abutting neighbors.

Poly Tunnels and Greenhouses

I am estimating the need for approximately 10,000-15,000 sq ft of greenhouse space for plant overwintering and propagation. Again these structures should be located in association to the upper barn, and should be situated in a way that minimizes there visibility to passersby and abutters. The exact location is not settled as these structures are subject to MDAR approval.

What's this Emphasis on Coppicing?

Coppice is an underutilized, ancient land management technique that produces productive habitats, ecosystem services, biodiversity support, and useful horticultural products with a bare minimum of management inputs. By stimulating the stump regeneration response of deciduous woody plants via the simple method of cutting their tops down to the ground once over 3-7 years (depending on the species) we create an ecosystem middle space between forest and field: large areas of shrubby ecotone that provide a full spectrum of upland habitat benefits, while also producing rods and switches for a variety of landscape crafts, tree hay (animal fodder), cuttings for propagation, live stakes, and remial wood chips for soil building. The cyclical nature of sun and shade on the ground of a coppice field produces a landscape that is easier to manage for weeds and invasives without chemical and mechanical interventions, as well as a rotating kaleidoscope of ground level herbaceous plants that change as the shade profile on the surface changes through the years.

Coppice offers new, low cost options for turf displacement. As a landscape professional for 30 years, I have learned that many people are hungry for options to replace turf grass areas on their properties with ways other than letting the areas succeed into forest or trying to create and manage wildflower meadows. People are drawn to open, sunny spaces and want sunlight in their windows. Minimally managed, coppiced woody spaces are a great option to make ecologically beneficial spaces that also fit human landscape needs. Coppice fields at Nagog would be used as demonstration models to help people visualize the potential and make choices on how to replace their turf.

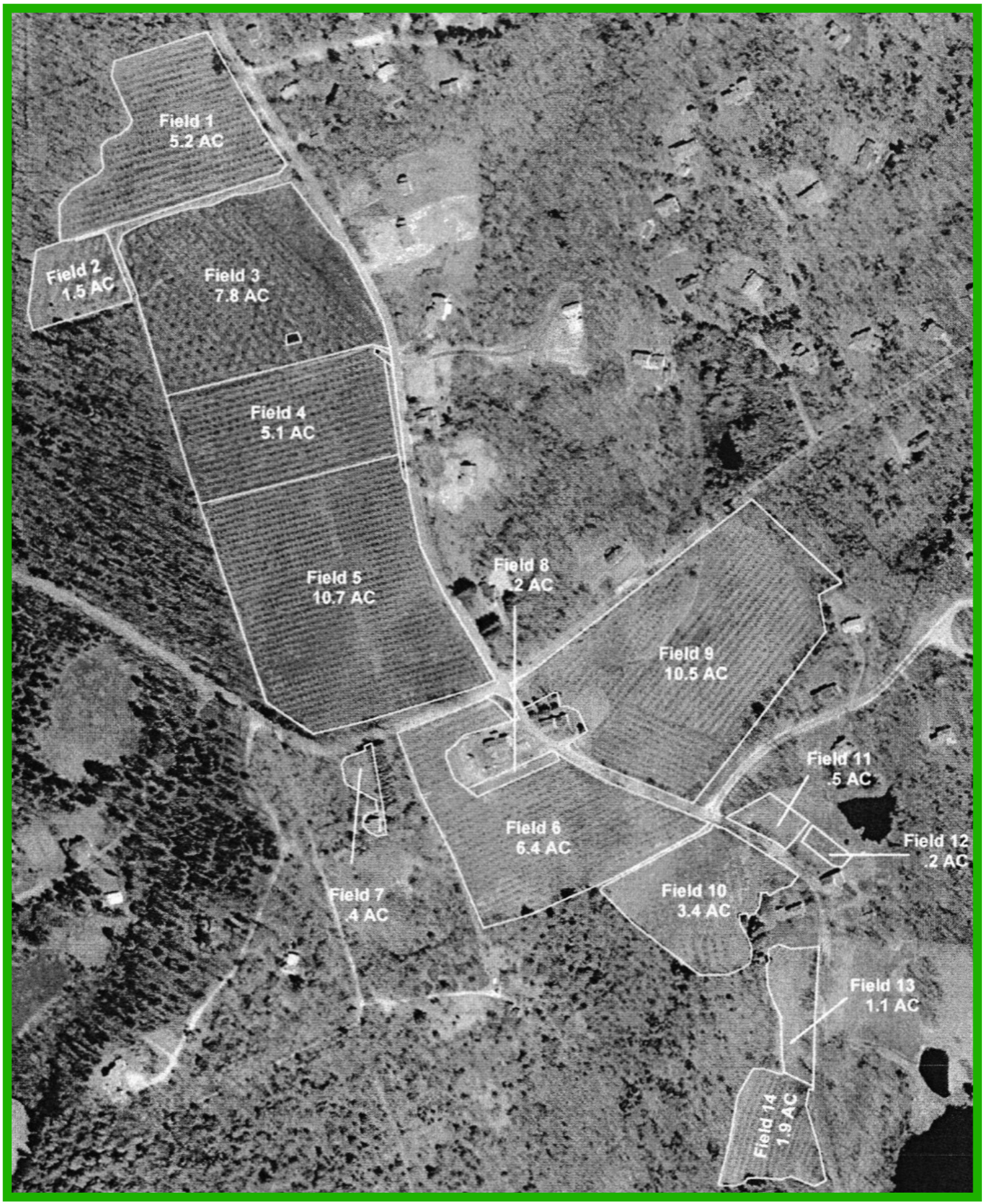
Coppice spaces are inviting and magical. The following page demonstrates a patch of 1000 sq ft that I planted with 30 Catalpa saplings grown from cuttings off of the twisted catalpa tree at the Library in Lincoln Mass. We wanted to see if any of the saplings would demonstrate the twisted habit (none have) but the resulting space after 5 years of growth is a beautiful, inviting environment. This is an example of the kind of high eco-value, yet compellingly beautiful landscapes and living vignettes that the ancient practice of coppicing can create.

Twisted Catalpa Coppice (5th year)

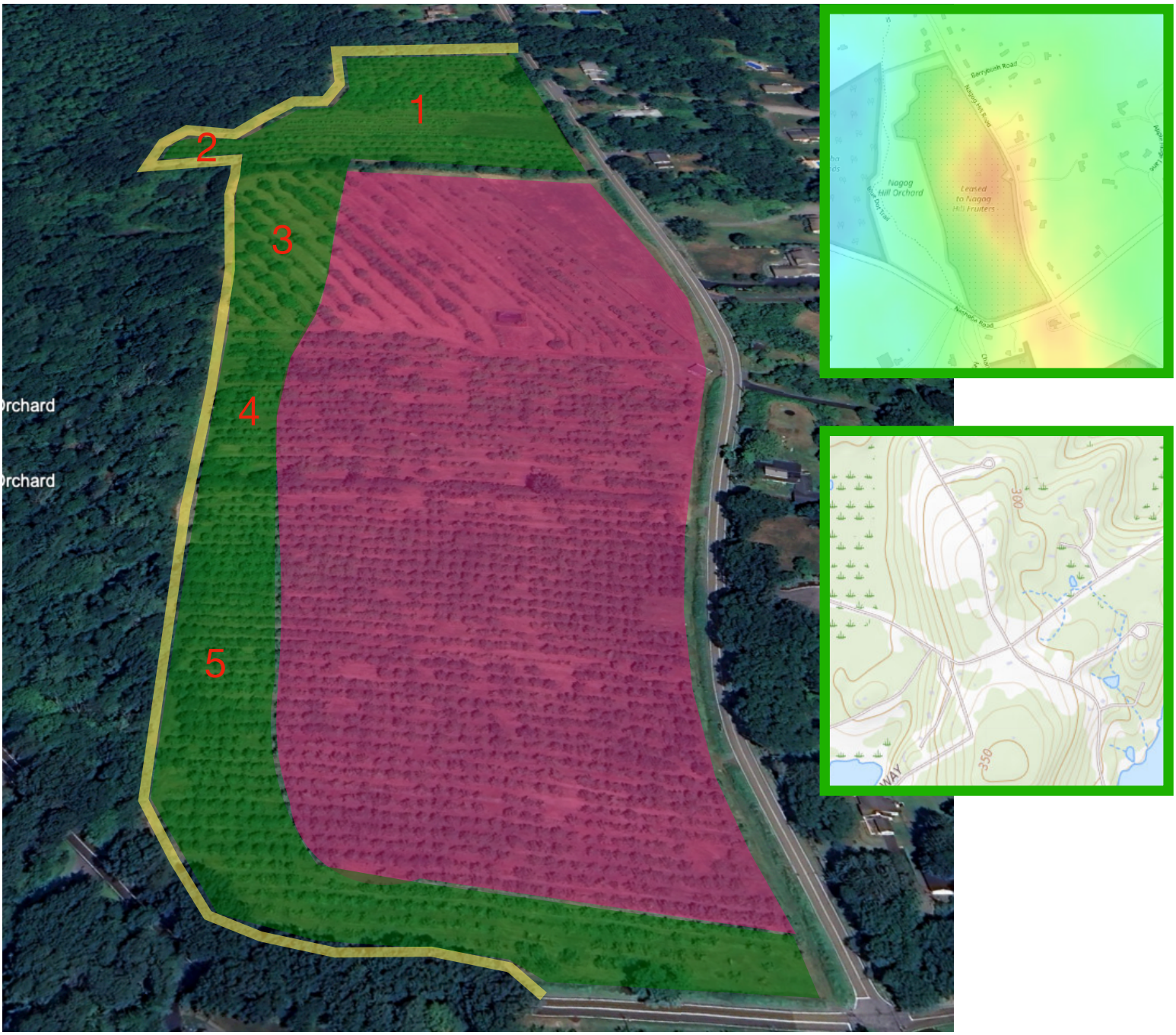
Sapling installation

Year 2

Land Use Description



Fields 1,2,3,4 & 5



Overview: APR land usage will follow 1 of 2 paths; more active-use container tree production area, or the passive permacultural uses. It is my intention to use the permaculture areas as buffer zones to screen the active uses from neighbors and trail hikers. They are also the shadier areas and have the most value as ecotone being adjacent to the forest. It is crucial that any new plantings along the roads be done in a way that preserves the wonderful big-sky vistas that characterize the neighborhood. It is my imperative to always conserve and expand the physical beauty of the land for all to enjoy.

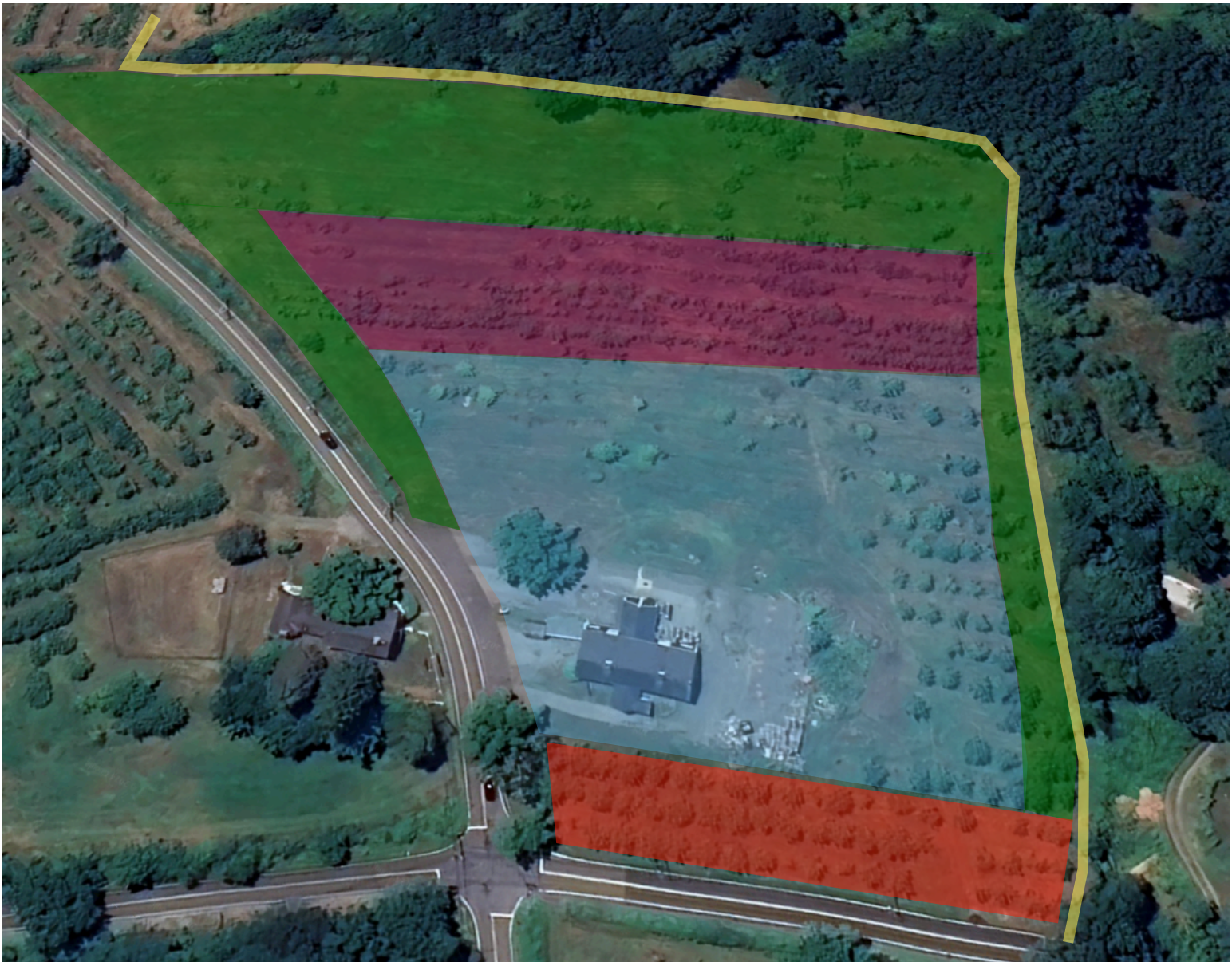
Nursery container production requires mostly level ground. The inset maps generally indicate the topographical plateau where the tree and shrub container production will be focused.

Green Area - Permaculture installations and conservation / preservations plots: Hybrid Chestnut, Hazel, Red Mulberry, Paw Paw, Willow, Christmas trees, etc.

Mauve Area - Level ground for container production.

Yellow Line - Public access trail

Fields 6, 7, & 8



Green Area - Permaculture installations and conservation / preservations plots: Hybrid Chestnut, Hazel, Red Mulberry, Paw Paw, Willow, Christmas trees, etc.

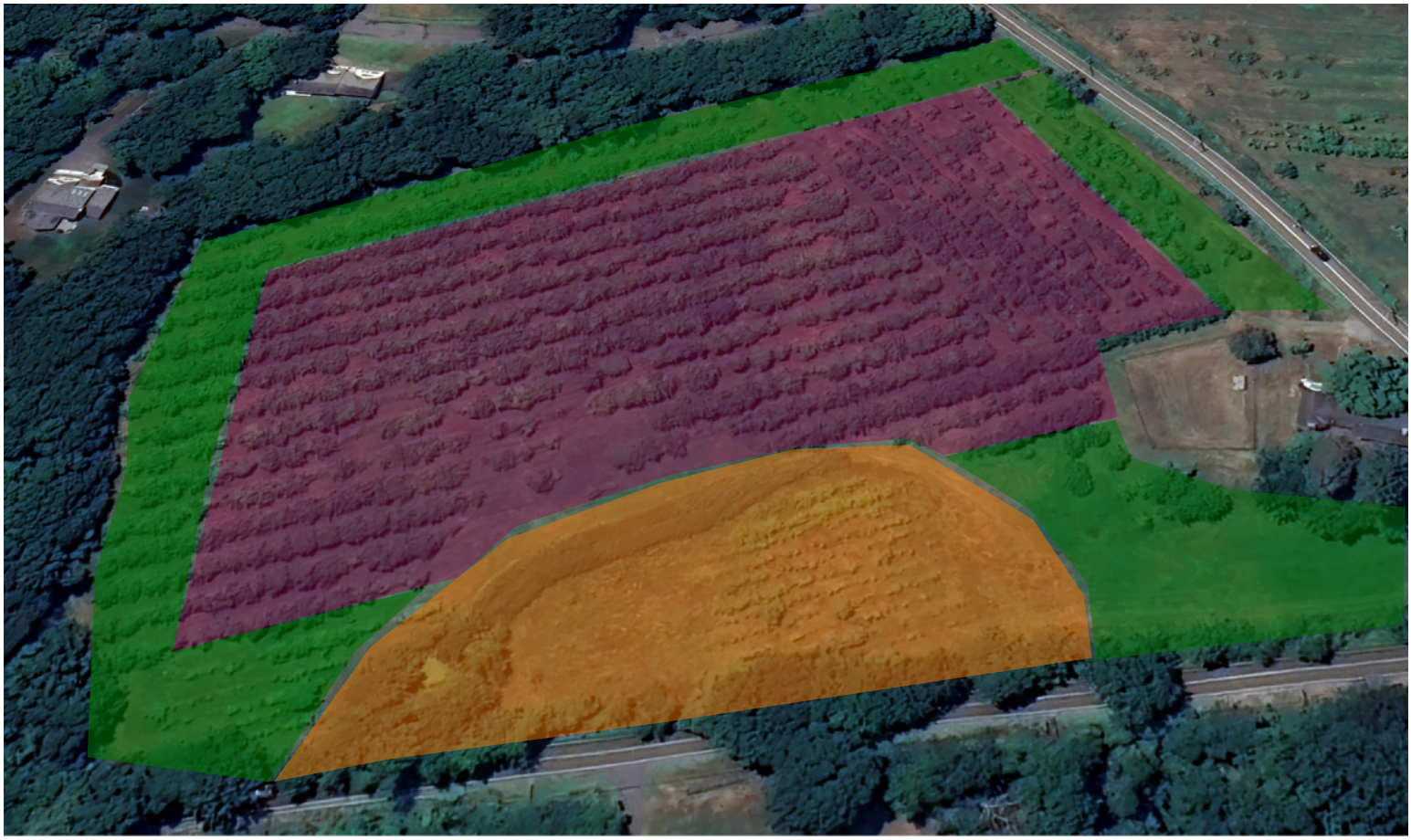
Mauve Area - Level ground for container production.

Yellow Line - Public access trail

Blue area - Hoop houses, chip piles, staging, shipping and receiving as per MDAR approval.

Red area - Preserved apple trees.

Field 9

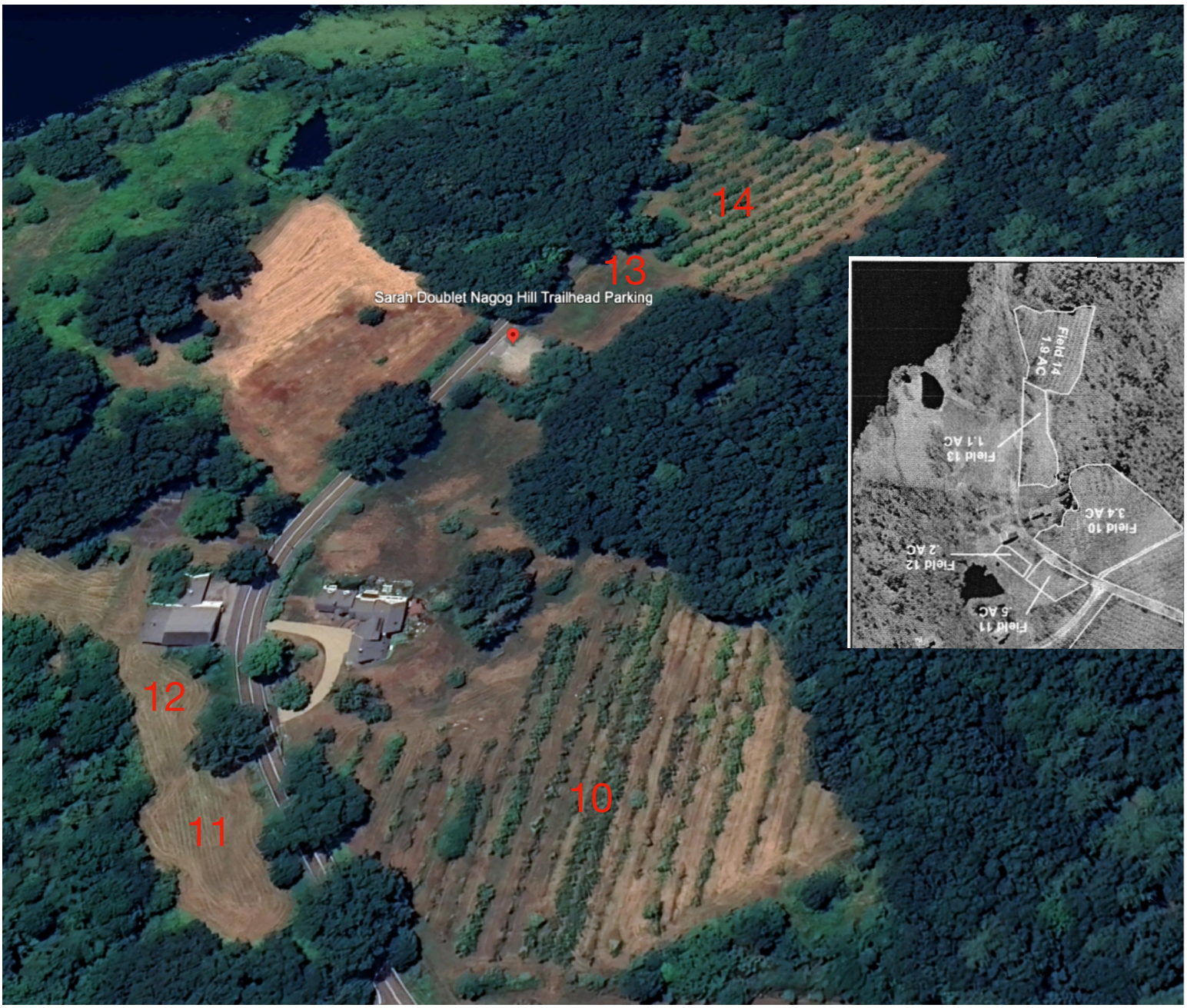


Green Area - Permaculture installations and conservation / preservations plots: Hybrid Chestnut, Hazel, Red Mulberry, Paw Paw, Willow.

Mauve Area - Level ground for container production.

Orange Area - Low land soil area. Potential for wet soil permaculture tree installations. I would like to try to propagate Black Ash into this area in an attempt to preserve this species and grow some logs suitable for traditional ash splint basketmakers.

Field 10,11,12,13, & 14



Fields 10-14 are uniquely sensitive in that they totally surround the residence at 91 Nogog Hill Rd. Fields 10,13, and 14 are very hilly and so are only suitable for permaculture installations. At this time I am thinking that Paw Paw, Chestnut, or Red Mulberry are passive enough trees that they can coexist very close to #91 without being a disturbance. Fields 11 & 12 are open for suggestions.

Sample Newsletter
BTC Spring 2024

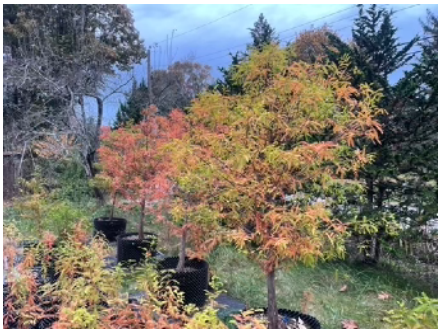
Talking Leaves

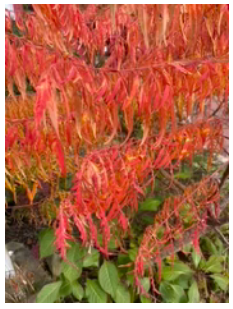
The Seasonal Newsletter of Bransfield Tree Company

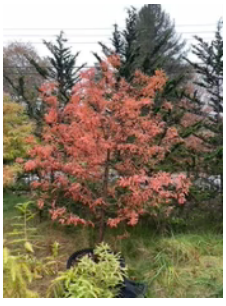
Spring 2024

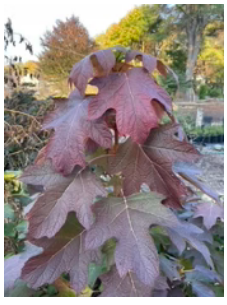
Bransfield Tree Company LLC

This year, the USDA released its latest updated version of the Plant Hardiness Zone Map (PHZM) based on 30 years of temperature averages, and fully half the continental US was shifted up to the next warmest half zone. Translation: the average temperatures in our Eastern Massachusetts communities are warmer, and this has meaningful ramifications for our trees and their ecosystems. At BTC we are at work in this nexus of change, seeking the means and methods to preserve our old trees and now propagating and producing the next generations of native trees for a warmer New England climate. In 2022, we started planting native trees and shrubs in 'air-pot' containers with the goal of growing larger/ better native trees and shrubs with superior root systems. Many desirable natives do not lend themselves to the modern growing and harvesting paradigm, so they are generally just not available above very tiny sizes. We are aiming to produce sizable, well pruned, well rooted, ecologically valuable native trees and shrubs for the future.



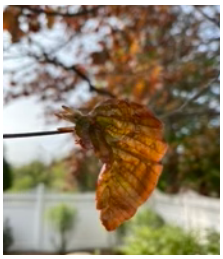






Plants we are growing: Oaks, Hickories, Sassafras, Larch, American Hornbeam, Persimmon, Eastern Redbud, Eastern Red Cedar, American Basswood, Black Gum, Sourwood, American Hophornbeam, Striped Maple, Baldcypress, Paw paw, Sumac, Red Mulberry, Corylus, Button bush, Spicebush, White Fringetree, Chestnut, et al.

Beech Leaf Disease Approved Treatment Available



Mass Dept. of Agricultural Resources has approved a fungicide, Broadform, for the treatment of Beech Leaf Disease. 2 Spring applications are recommended. This is welcome news for specimen residential Beech trees, but will obviously not mean much for forest Beech trees. BTC has secured a supply of this fungicide, please spread the word to friends with these threatened trees.

2023 was a very wet year (you might recall). One consequence of all the rain was an explosion in jumping worm populations. While we are still just beginning to get a handle on the contours of this pest, 2023 was a demonstration of just how dense the populations can become with ample moisture, and how much soil organic matter they can consume and degrade in single year. It's a tough row to hoe trying to bring awareness to this pest problem due to the positive image most folks have of earth worms, but the case must be made. These worms are not normal, they simply destroy soil, and degrade all of the ecological services healthy soils perform for us. In an effort to find low cost, safe, and available solutions I applied an entomopahogenic (bug killing) microbe to several thousand sq ft of infested soils in 2023. While I cannot claim any real degree of scientific rigor in evaluating the results, the reduction in worms was obvious and dramatic—especially compared to directly adjacent areas. So I'm expanding this experimental protocol to all who wish to participate in 2024. Please reach out if interested info@bransfieldtree.com

I was fascinated to find this Black Birch in Groton, which looks to have somehow managed to grow a root though the open air and down into the ground below. My Best guess is that there once was a log or dead tree leaning from the ground to the ledge shelf. The birch ran a root down the decayed log which has now rotted completely away. Leaving us with this truly curious tree growth.