



Forest Health on Deer Isle

Lily Pond Tree Nursery aims for a Healthy and Resilient Forest at Lily Pond Park

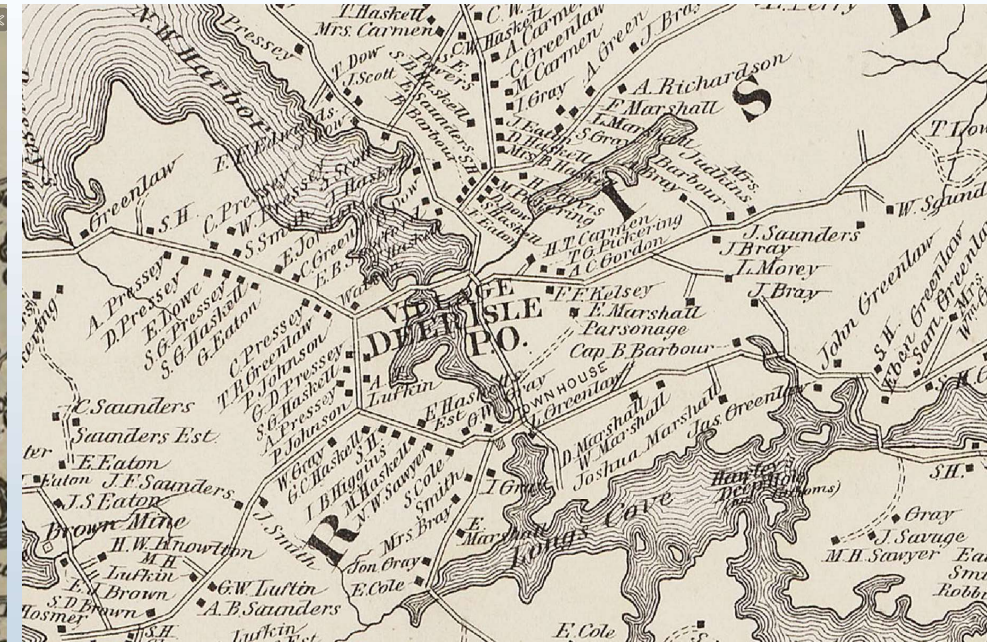


ISLAND
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Brief History of Lily Pond



1860 Walling Map of Hancock County



1881 Colby Atlas

Lily Pond Park Today....

- ▶ A place
 - ▶ for outdoor recreation
 - ▶ for educational programming
 - ▶ to host community events
 - ▶ to promote a healthy landscape
 - ▶ to protect a valuable resource



Ongoing projects and outreach for Lily Pond Park

- Dam Rehabilitation Project
- Nature-like Fishway
- ME State Forestry Emerald Ash Borer Early Detection Site
- LP Tree Nursery
- LP Field Pollinator Project
- Educational Programs
- Family Fishing Day
- Forest Management of LP Park
- Universal Access Trails



New England Forests – A Shifting Mosaic

- ▶ "New England forests as a shifting mosaic" refers to the dynamic nature of forest ecosystems in the New England region, where different areas are constantly changing due to natural disturbances like windstorms, fire, and insect outbreaks, creating a patchwork of forest ages and compositions across the landscape, rather than a static, uniform forest; essentially, a constantly evolving mix of young, mature, and old-growth forests across the region.





A Shifting Mosaic – New England Wildlife

- Forest wildlife populations and their habitats in New England are products of the land—its condition after centuries of human use and natural processes. Conditions are never static; they are changing continually in response to disturbance and succession.
- Habitats for all species once were provided continuously by wind, fire, and other disturbances. Native prairies, shrublands, forests opened by burns and blowdowns, and subsequent forest regrowth provided habitats for a diverse New England fauna in a shifting mosaic across the landscape. This is no longer the case.
- The development of historically open habitats, fire control, and the decline of agriculture have changed the landscape dramatically. Today in much of New England, forests are mature and largely unmanaged. ***On Deer Isle, we see many forests of a single age class due to agricultural abandonment. ***
 - Wildlife species associated with mature forests—fisher and pileated woodpecker, for example—have become common.
 - Species associated with old fields, brushlands, and young forests—field sparrows, eastern towhees, and New England cottontails, among many others—have declined precipitously as their habitats have been developed or have reverted to forest.
- Many forest management practices are now necessary for creating a range of forest habitat conditions to maintain or enhance forest wildlife diversity in the region.



Maine Geological Survey Aerial Photos of Deer Isle, ME - 1944

Let's Zoom In on Lily Pond....

Maine Geological Survey Aerial Photos of Deer Isle, ME – 1944



Zoom in a little
closer....

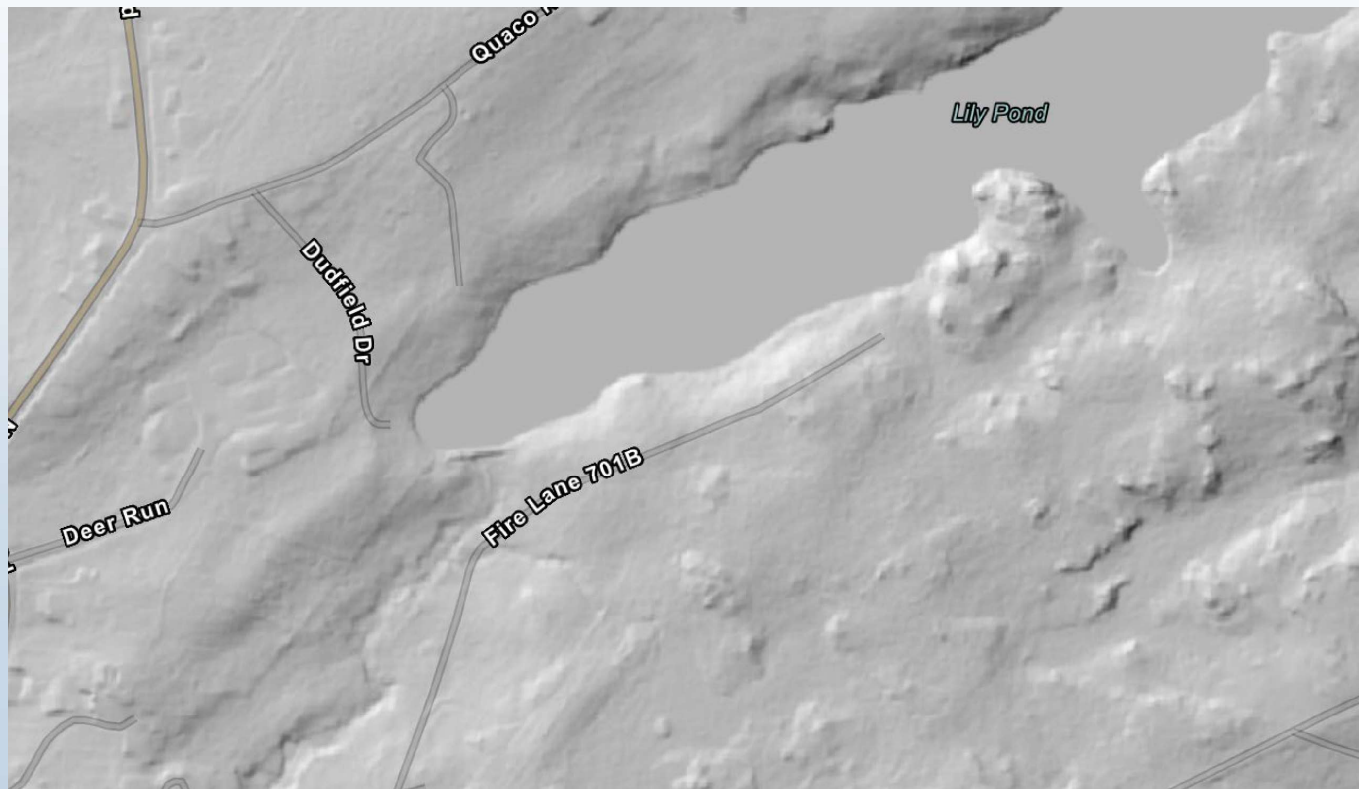


Maine Geological Survey Aerial Photos of Deer Isle, ME – 1944

LIDAR imaging of Lily Pond Park....

Maine Geological Survey Open Data, Maine Lidar – 2020

What can you see?





Solastalgia

- ▶ Solastalgia describes a form of emotional distress and bewilderment that arises when one's home ground is unrecognizable through environmental change.
- ▶ We feel this because we are observant, caring, and 'In tune with nature.'
- ▶ Examples of events that can cause solastalgia:
 - ▶ Natural disasters
 - ▶ Natural resource management in response to environmental threats
 - ▶ Mining
 - ▶ Development
 - ▶ Climate change
 - ▶ Severe infestations of invasives – EAB or Spruce Budworm
- ▶ Land conservation is based on the concept of in perpetuity, so IHT is challenged to look beyond our generational life spans.



Lily Pond Tree Nursery is funded by Project Canopy Maine and IHT support

- ▶ Project Canopy is about people. It educates people about the benefits trees provide, and how trees make people's lives better. It connects people who have a particular expertise to people who need that expertise. It helps build bridges with town and city governments, and it knows how to communicate in a local, political environment. And just as important, Project Canopy helps people talk about success stories so that they can find the motivation --- and inspiration --- that is crucial for developing creative, long-term community forestry programs.
- ▶ The Maine Forest Service has an incredible reservoir of knowledge and expertise. The challenge for us is to get that knowledge to the people who can use it. Any long-term community forestry program needs commitment and understanding from many different corners. Project Canopy's role is to get people in different corners talking to each other so that awareness about trees can grow by leaps and bounds. We do that by using down-to-earth strategies and deploying technical experts into the field to lend hands-on assistance.
- ▶ Project Canopy is a cooperative effort of the [Maine Forest Service](#).



Project Canopy Maine - Goals

- Helping recruit and organize volunteers
- Providing model community tree ordinances
- Assisting in fund-raising efforts
- Training tree stewards
- Providing street tree inventory software
- Helping communities appoint/elect a community tree warden
- Linking communities to other Maine communities with successful tree programs
- Providing lists of local foresters and arborists
- Building bridges to national community tree organizations
- Assisting in the development of a long-term community tree plan



Lily Pond Tree Nursery Working Goals

- The Lily Pond Park Nursery will be an asset to IHT and the Deer Isle community to promote healthy sustainable forests. Our ideal forest management for Lily Pond Park includes the promotion of native growth throughout the park by identifying key species, encouraging diversity and climate resilience, and mitigating invasive species. At this time, Lily Pond Park is home to a variety of native species including red oak, hawthorn, serviceberry, red maple, beech, apple, white ash, white birch, yellow birch, red spruce and hemlock.
- There is a concerning stand of Norway Maples that are beginning to suffocate areas in the park, along with Japanese barberry and oriental bittersweet. We hope to improve community awareness of these invasive species through this project and communicate the need to encourage native species.
- The Norway maples and other hardwoods that might need to be removed for the dam rehabilitation project within the Lily Pond Dam Rehabilitation project area will be harvested and processed for a community firewood bank.
- A tree nursery will be laid out and created to hold plantings of selected seedlings and saplings with the ultimate goal of creating a closed-loop cycle to support sustainable silviculture on IHT's properties and across the greater Island community.

LP Tree Nursery – Goals for the next three years:

- ▶ Exemplify best forestry practices by creating a tree nursery
- ▶ Help grow tree stock that can be used to replace current invasive species around the pond
- ▶ Replace trees damaged or removed in the dam rehabilitation process
- ▶ Provide saplings that can be planted on various IHT preserves, local parks, or along town roads
- ▶ Partner with local garden clubs and municipalities for maintenance and cultivation
- ▶ Serve as a way to educate local school children and the general public about silviculture
- ▶ Support local economy through multi-year contract work for natural resource professionals
- ▶ Establish a 'firewood bank' for year-round residents in need of heating assistance
- ▶ Host programs to encourage arborist safe work practices



What have we accomplished so far?

- ▶ Built a 50' x 40' commons with IHT volunteers dedicated to growing woody species native to New England.
- ▶ Removed several Norway maples and replaced them with native woody plants – Red maple, silver maple, silky dogwood, red spruce, etc donated by Blue Hill Heritage Trust and 5 Star Orchard (Brooklin).
- ▶ Planted 6 heritage apple trees donated by the Peggy Rockefeller Farm
- ▶ Added a beehive to the LP field tended by local beekeeper, Asia Keene, to encourage pollinator presence
- ▶ Added 6 garden beds – created by volunteers, Mary Anne Broshek and Susan Ostertag, with seasonal pollinator plants for educational programming
- ▶ Grew 20 oak saplings planted by 8th graders from DISES.
- ▶ Early Emerald Ash Borer Detection in partnership with the Maine State Forest Agency



But there is still more to do....

- Create more community partnerships
- Seed collection and propagation
- Grow species that will be resilient to our future climate - white oak
- Grow species that have been challenged by historic blights – American chestnut
- Help form an island firewood bank
- Built a tool shed
- Create a water source – solar pump or rain barrel
- Build gates for the nursery



Goals for a healthy forest at Lily Pond Park

- Keep soil fertility
- Keep genetic diversity
- Keep freshwater features protected
- Keep interior forest conditions – 300 foot buffer from development
- Keep a variety of habitats – ages, species mixes, patch sizes, etc.
 - Snags – both important habitat and dangerous
 - Retention patches – can be as small as an acre
- Manage the forest to be resilient against climate change and severe weather events
- Defend the forest against invasive plants and insects



Challenges to our forests...

Increased potential for severe wind events:

- ▶ Coastal spruce/fir forests are adapted to wind disturbance as a necessary part of forest succession. Windfalls create canopy gaps for regeneration and improve structural diversity that provides habitat for a variety of wildlife. There is still enough canopy cover in small gaps to prevent transition to more shade intolerant species so this forest type remains dominated by spruce/fir. More severe wind events like we've seen the past few years have the potential to create much larger canopy gaps that could invite invasives and accelerate forest transition to shade intolerant hardwoods, possibly causing a widespread decline in this distinctive coastal forest type.



Balsam Woolly Adelgid

- ▶ This invasive insect pest affects balsam fir and has started to become a major issue along coast moving up from southern Maine. Warmer winters have allowed populations to move north. Feeding on twig ends causes a bulbous growth that restricts vascular flow causing dieback and if severe enough whole tree mortality. It affects both mature and understory trees.



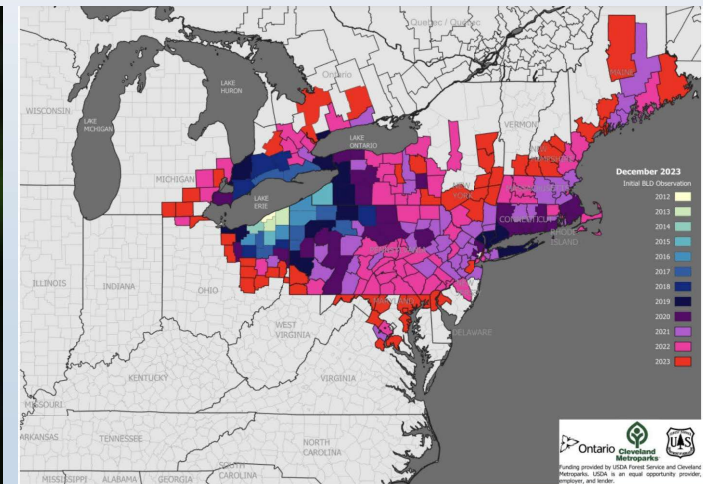
Browntail Moth

- ▶ Most people are probably intimately familiar with this one around here, but needless to say it may become an even larger issue year to year. Populations are moderated by a fungal pathogen that can kill caterpillar larvae during wet spring and early summer seasons. It occasionally causes tree mortality in oak and fruit trees but is usually more of a human problem.



Beech Leaf Disease

- Not much is known about this relatively new disease complex that has spread rapidly through Maine in the last few years. It involves a non-native nematode that causes dark bands in the leaves which then shrivel and die. Most beech affected decline and die, especially ones already infected with beech bark disease. There are several trials underway to attempt to treat this disease complex.



Spruce Budworm

- ▶ This native insect was responsible for mass spruce/fir mortality in northern Maine the 1980's. Epidemics usually occur on 30–60-year intervals. Populations in Maine have been ticking up as mature moths migrate down from Quebec. People disagree about whether a new epidemic is immanent, but nevertheless this insect has the potential to do serious damage to spruce/fir forests through multi-year defoliation. Despite its name, it tends to cause mortality in balsam fir more often than spruce.



White Pine Blister Rust

- ▶ This one is garden club-specific. White pine blister rust is a fungal pathogen that causes massive sunken cankers and mortality in eastern white pines. It requires an alternate host plant in the Ribes family to spread from tree to tree. This includes pretty much all currants and gooseberry varieties. Gooseberries and currants have become desirable lately with the superfood crowd, but planting and propagating them in Maine is actually illegal, though not really enforced. It's worth a reminder that planting anything in the Ribes family could have a significant impact on Deer Isle's relatively few interior white pine stands.



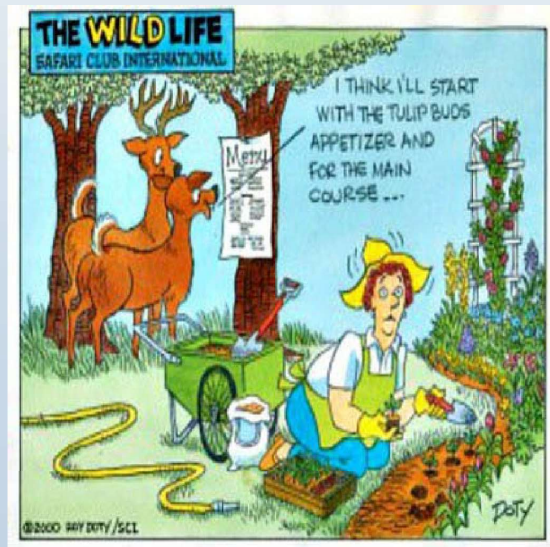
Emerald Ash Borer (EAB)

- ▶ EAB is a non-native wood boring beetle that causes mortality in all native ash species. Signs include D-shaped holes in the trunk of infected trees, canopy dieback, increased woodpecker signs, bark sloughing and more general signs of decline. Emerald ash borer does not spread very far on its own, so most new populations get established through moving infected firewood around the state. Current forest management recommendations for controlling the spread and mitigating the inevitable damage to some extent is to space out ash stands by cutting trees over 7-8 inches diameter at breast height (DBH). Larger, closely grouped ash trees support more beetles which result in faster spreading. A very small proportion of ash trees may have a natural resistance, so it's important for landowners not to cut every single ash out of their forest but leave a few well-spaced so that there are hopefully individuals to support a population recovery.



Deer Browse

- ▶ Maintaining a stable population of deer is essential for natural regeneration in the understory to be successful. Deer feed on many different sapling trees and can obliterate regeneration causing issues in forest succession. Whitetail deer thrive in edge habitats, i.e. yards and fields, so as more houses are built and edge habitats created there is a potential for deer populations to rise drastically with negative impacts on forest health. A healthy amount of hunting and keeping forest blocks unfragmented by development is essential to keeping deer population in check.



Our response to change

- ▶ Climate change is the overarching issue that exacerbates all of these concerns, so the question is how resilient are different forest types on Deer Isle in the face of increased disease/pest/invasive pressure and environmental change?



Questions & Answers



Thank you for joining us!



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