

# INTO THE WOODS

NEW ENGLAND FORESTRY FOUNDATION | WINTER 2021

## Exemplary Forestry Heads South

PAGE 3

---

HABITAT FOR TREE-DWELLING BATS

PAGE 7

---

MEET THE WHITE OAK

PAGE 9

---

WRITING THE LAND

PAGE 11

---

THE WINDOW OF  
OPPORTUNITY

PAGE 14

---



NEW ENGLAND  
**FORESTRY**  
FOUNDATION

# Board of Directors

## PRESIDENT

Frederick J. (Rick) Weyerhaeuser

## VICE-PRESIDENT

David (Tracy) Moskovitz

## TREASURER

Robert W. Ackerman

## CLERK

Anne Stetson

## ADDITIONAL DIRECTORS

Laurence (Larry) Band

Whitney (Whit) Beals

Christopher (Chris) di Bonaventura

Cameron Brandt

Philip Y. DeNormandie

Frederick (Rick) Findlay

Michael Lehner

G. Montgomery (Monty) Lovejoy III

Jacqueline Perry O'Connor

Robert (Bob) Perschel

Todd Rodman

John van der Stricht

Byron Stutzman

Elizabeth Swain

## HONORARY BOARD MEMBER

Bayard Henry



**NEW ENGLAND  
FORESTRY  
FOUNDATION**

32 Foster Street | P.O. Box 1346

Littleton, MA 01460

978.952.6856 | [newenglandforestry.org](http://newenglandforestry.org)

This publication is printed on **Monadnock Astrolite PC 100**, a third-party certified, 100% post-consumer recycled paper, produced using 100% clean, renewable electric power. **Astrolite PC 100** is an environmentally responsible choice.

Many thanks to **Monadnock Paper Mills** of Bennington, NH for their support in this endeavor.

*Exemplary Forestry* and *Exemplary Forest Management* are trademarks of New England Forestry Foundation, Inc.

## Dear Members and Friends,

As I write this, we are waiting anxiously to see what climate funding Congress is able to keep in the Build Back Better reconciliation bill. This bill could dramatically increase the amount of funding for natural lands climate mitigation and the full range of New England Forestry Foundation (NEFF) programs that address climate change. It is a first chance to achieve NEFF's 30 Percent Solution—ways to use forestry and mass timber construction to offset fully 30 percent of New England's required reduction of energy-related emissions in the next 30 years.

But it is not only the reconciliation bill we have our eyes on; there are a number of other encouraging events that should take place before you receive our next newsletter. Our suite of materials that support NEFF's set of Exemplary Forestry™ standards for Central and Transition Hardwoods is now in the final round of review with our Advisory Committee, and the standards themselves are currently available as you'll see on page 4. We are anticipating an in-depth report from the Highstead Foundation that we will co-author and which will confirm the stunning climate mitigation potential of New England forests that NEFF announced earlier this year. A Yale School of the Environment class will complete their analysis of policy approaches to achieve the 30 Percent Solution and deliver it to regional policy makers. And finally, we and our partners in the Maine Forest Carbon for Commercial Landowners (FCCL) Dialogue will complete a study with the University of Maine that will articulate pathways and incentives for the large commercial landowners of Maine to achieve greater climate mitigation.

That is quite a list and why we feel there is an unprecedented window of opportunity open before us. The suite of NEFF climate and Exemplary Forestry programs covered in our last two newsletter issues is ready to maximize this generational opportunity.

As we move into this period, I would like to make a personal call to the entire conservation community—in all its breadth—to work together to achieve much more than NEFF or any one of us can achieve alone. This is a time when we should not leave behind any aspect of our collective work, so let's ensure that everyone and everything benefits as we prepare ourselves for the challenge and opportunity of our lifetimes.

We need to protect the biological diversity of life in New England while we tackle climate change, and that includes species that depend on old-growth forests as well as animals that require newly harvested and regenerated forests. We need to think about the benefits that must accrue to all citizens of New England from the still-wild places of Maine to the core of our cities. Let's protect land from development, establish more wilderness areas and improve forestry to Exemplary Forestry standards. Let's create jobs in rural communities, recreation sites for visitors, plant more trees in cities, and build healthier and more affordable buildings from renewable, regional wood products. Let's protect bears, bunnies, butterflies and bats and do it from Burlington to Bangor and Boston to Bridgeport, from Presque Isle to Portland and Providence. Let's ensure the funding we apply to this cause brings real change to all of the diverse people that have called New England home for hundreds of generations to only a few days. Yes, the tides are literally rising but it is also a tide of opportunity that approaches. Let's do this together in a way that lifts all boats.

Robert Perschel  
Executive Director

3

EXEMPLARY FORESTRY HEADS SOUTH

7

HABITAT FOR TREE-DWELLING BATS

9

MEET THE WHITE OAK

11

WRITING THE LAND

14

THE WINDOW OF OPPORTUNITY



This shot shows a Little Brown Bat, one of New England's nine bat species, overwintering in a cave. Photo courtesy of Massachusetts' Division of Fisheries and Wildlife.

NEFF thanks the following organizations for providing resources that proved useful when researching this newsletter's two bat-centric pieces: Vermont Fish and Wildlife Department, Maine Inland Fisheries and Wildlife, Mass Division of Fisheries and Wildlife, New Hampshire Fish and Game, MassAudubon, Vermont Bat Center, US Forest Service, US Fish and Wildlife Service, Vermont Center for Ecostudies, The Nature Conservancy

## A Sneak Peek

### WRITING BY

NEFF Ecologist Carla Fenner

I wrote the second article in this issue (see page 7), and it provides an overview of New England's bats and the challenges they're facing. The NEFF communications team and I wanted to give readers a sneak peek at a bat photo early in the newsletter, and provide some basic information about these incredible animals.

These days, a growing number of people seem to understand bats are mammals, but did you know they are the only kind of flying mammal in New England? I also think they're pretty cute, but that's not always a widely held opinion.

Bats have long been misunderstood, and are often portrayed in popular media as frightening animals who keep company with witches and vampires, or even as predatory disease carriers.\* In truth, bats are incredible animals with a fascinating life history, and they play an important ecosystem role that does us all a favor: A single bat can eat the equivalent of 1,500 mosquitoes in just one evening, and they eat black flies too!

\*While bats can carry zoonotic diseases, these diseases spread to humans when people—like wildlife traffickers, researchers, tourists, or curious locals—come into close contact with wild bats and do not follow appropriate safety protocols or wear appropriate protective equipment. Don't blame the bats!  
—Tinsley Hunsdorfer, NEFF Communications Manager.



# EXEMPLARY FORESTRY HEADS SOUTH

New England Forestry Foundation Unveils Its Exemplary Forestry Standards for New England's Central and Transition Hardwoods

In 2019, with the Acadian Exemplary Forestry standards officially a feather in NEFF's cap, we turned our attention to the woodlands of southern New England and the creation of equally powerful standards for this significantly different setting.

NEFF again engaged an expert outside advisory group to work with our staff ecologists, foresters, and climate experts. After careful research, analysis and review, this team has now successfully crafted Exemplary Forestry standards for New England's Central and Transition Hardwoods.

## Central and Transition Hardwoods Contributors

**Carla Fenner**  
NEFF Ecologist

**Alec Giffen**  
NEFF Senior Forest Science and Policy Fellow

**Bob Perschel**  
Forester and NEFF Executive Director

**Colleen Ryan**  
Ecologist and Science Writer

**Jen Shakun**  
NEFF Climate-Forest Specialist

NEFF has worked since its 1944 founding to improve forest management and implement these advances on its lands, and NEFF staff has codified both this approach and the science and silviculture that support it to produce Exemplary Forestry. Today, Exemplary Forestry sets what NEFF believes are the highest standards of sustainability available to the region's forest owners for three key goals: enhancing the role forests can play to mitigate climate change in the critical 30-year period, improving biodiversity and enhancing wildlife habitat for the full range of species present, and growing and harvesting more sustainably produced wood.

NEFF's two sets of standards—the first for the Acadian Forest region of northern New England, and the second for the Central and Transition Hardwood forests found south of the Acadian Forest—have the same broad framework. They both preserve the full suite of ecosystem services when implemented and have the same three key goals; both sets of standards lay out specific and measurable practices to achieve these goals simultaneously; and both take the wider landscape

Photo by Charlie Reinertsen

into account when determining how to manage specific land parcels.

However, the details within that framework look pretty different from one set of standards to the other. Not only do climate zone, elevation, and forest types shift as you move from northern Maine to coastal Connecticut, but so too do human-controlled factors like forest stocking levels.

### EXEMPLARY FORESTRY FOR NEW ENGLAND'S CENTRAL AND TRANSITION HARDWOODS

With long-term implementation in Central and Transition Hardwood forests, these new Exemplary Forestry standards will diversify wildlife habitats and maintain approximately half of forest stands as large, older trees of sawtimber size. They do not apply to, but compliment, ecological reserves, which make up nine percent of all of NEFF's land holdings and are a crucial component of the New England landscape.

The actual forestry standards and metrics (page 6) are supplemented by a range of materials, including Best Management Practices on topics like protecting soils, a summary of the process NEFF uses to evaluate an individual forest parcel's habitat potential in the context of its landscape, and an analysis of how the standards will be implemented to address the challenges presented by climate change.

Collectively, the documents provide an explanation of NEFF's approach to forest management, and will help other forest owners and managers implement Exemplary Forestry. They are currently available by request and will be posted to NEFF's website.

Of the Central and Transition Hardwoods standards themselves and their supplemental materials, those that address wildlife, forest types and climate change mitigation vary the most when compared to Exemplary Forestry for the Acadian Forest.

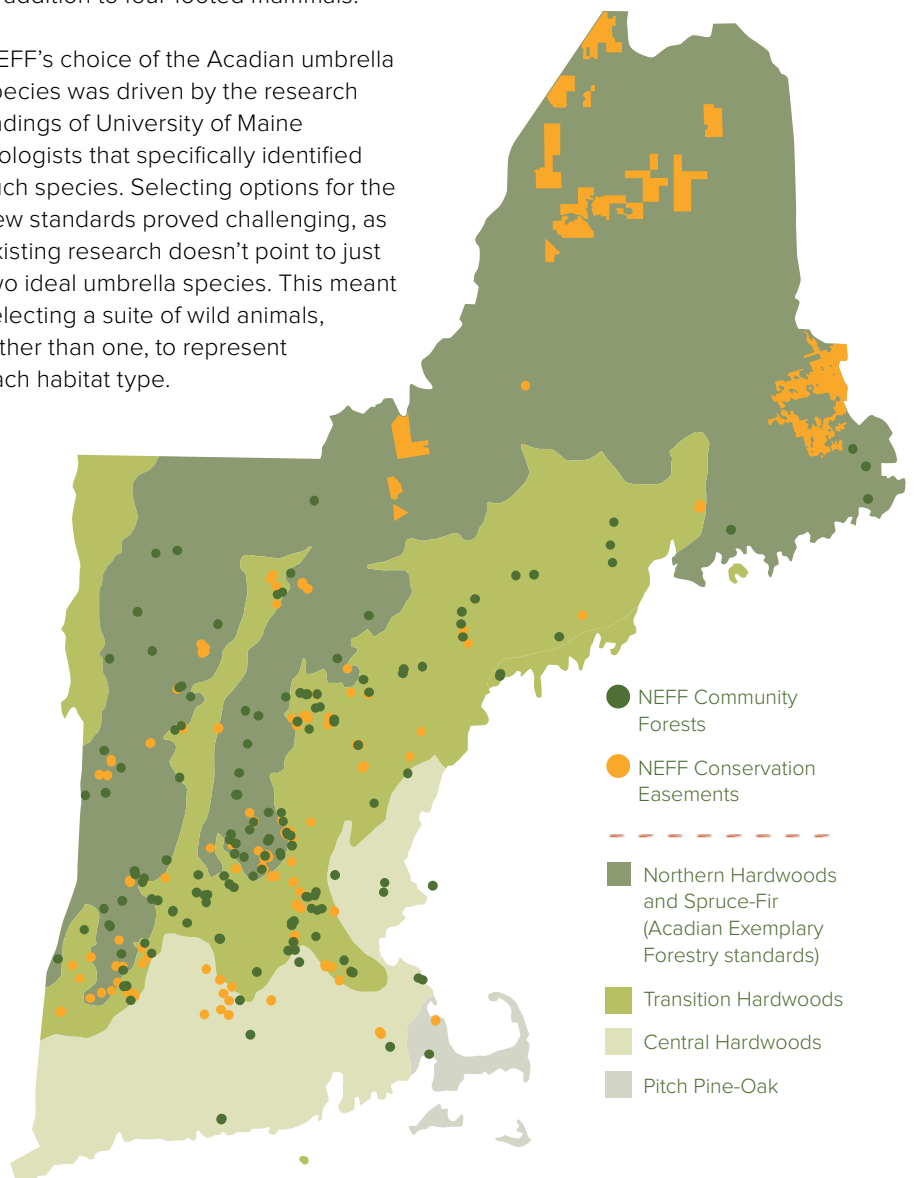
### UMBRELLA WILDLIFE SPECIES AND FOREST TYPES

The Central and Transition Hardwoods standards call for managing the forested landscape for three groups of umbrella wildlife species, or wild animals whose habitat needs encompass the needs of many other species. The groups are associated with three kinds of habitat—mature interior forest, early successional forest, and edge and transition-stage forest—and include a delightful range of animals. While the Acadian standards target habitat for the American Marten and Canada Lynx, the new standards branch out into bats, bees and birds in addition to four-footed mammals.

NEFF's choice of the Acadian umbrella species was driven by the research findings of University of Maine biologists that specifically identified such species. Selecting options for the new standards proved challenging, as existing research doesn't point to just two ideal umbrella species. This meant selecting a suite of wild animals, rather than one, to represent each habitat type.

These species' habitat goals apply to each forest type the standards account for, specifically, the five most common and economically important forest types in the Central and Transition Hardwoods region: Oak-Hickory, White Pine, Oak-Pine, Hemlock and Lowland/Riparian Hardwood.

Hardwood forest types play a bigger role in NEFF's more southerly Exemplary Forestry standards because southern New England represents the transition area between the Acadian Spruce-Fir forests to the north and the deciduous (hardwood) forests to the south.



## HARVESTING IN HEAVILY STOCKED STANDS

Large areas of the Central and Transition Hardwoods forest region are heavily stocked and thus already store a large volume of carbon. When drafting this new set of Exemplary Forestry standards, one of NEFF's top priorities was determining how to manage heavily stocked stands in a way that will mitigate climate change in the near term while still accomplishing Exemplary Forestry's other two key goals.

Given the climate crisis, it's crucial that both forest managers and people working on climate solutions understand forestry's immense near-term climate potential. NEFF has used available simple modeling and available data to calculate the net greenhouse gas impacts of implementing Exemplary Forestry silviculture, including the effects on carbon in the forest, carbon stored in wood products in use and in landfills, substituting wood products for non-wood alternatives, and burning wood waste in place of fossil fuels to produce energy.

The analysis showed a mix of careful thinning to remove the least vigorous trees and small-patch irregular shelterwood cuts, as recommended by Exemplary Forestry, can produce wood in a way that reduces greenhouse gas levels within 30 years, even when applied in high-volume stands. Given that demand for wood is growing, and that wood production elsewhere may not be climate beneficial, it makes sense to produce as much wood locally as possible, while also meeting the other goals of Exemplary Forestry. 🌿

## GLOSSARY

If you're unfamiliar with the technical aspects of forestry, this glossary of terms as used by NEFF may prove useful when reading the following one-page Exemplary Forestry overview.

**B-line stocking:** *The number of trees per acre for any given mean diameter that results in trees having no crown competition, but also no wasted space.*

**Best Management Practices:** *Guidelines for how to conduct an activity in an environmentally responsible manner, such as installing drainage control on a forest road. Best management practices are typically defined by state agencies in each state.*

**Cord:** *The volume of wood equivalent to that found in firewood stacked 4'x4'x8', or 128 cubic feet of wood.*

**Even-aged management:** A timber management method that produces a forest or stand composed of trees having relatively small differences in age. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at rotation age.

**Forest stand:** A community of trees occupying a specific area and sufficiently uniform in composition, age, arrangement, and condition as to be distinguishable from the forest on adjacent areas.

**Patch irregular shelterwood:** Creating small gaps in the canopy (generally greater than one acre in size) to regenerate a forest stand in patches which are expanded over time.

**Pole timer:** A Dbh\* size class representing trees that are usually more than four inches Dbh but less than ten.

**Saplings:** Generally refers to a tree at least six feet tall but with a Dbh less than five inches and greater than one inch.

**Sawtimber:** Trees that have obtained a minimum Dbh that can be felled and processed into sawlogs.

**Seedlings:** Generally refers to trees less than 4.5 feet tall.

**Silviculture:** The art and science of growing timber and other values.

**Stocking:** Amount of wood growing on a given area of land, calculated based on the number of trees per unit area. Stocking is expressed as volume per unit of area, for example cords per acre.

**Third-party certification:** *An official review of management practices on a particular property by an independent body for adherence to standards for sustainability.*

**Uneven-aged or all-aged management:** A timber management method that produces a stand composed of a wide range of ages.

**Wood quality:** *Higher-quality timber includes logs suitable for veneer and sawlogs without significant defects like knots. Lower-quality timber includes pulpwood and, at the extreme end, wood suitable only to be used as fuel or ground for mulch.*

*NEFF staff provided the italicized definitions, and non-italicized definitions were taken from Thom J. McEvoy's Introduction to Forest Ecology and Silviculture-Third Edition. \*Note: Dbh is an abbreviation for "diameter at breast height," or 4.5 feet above ground.*

# EXEMPLARY FORESTRY IN THE CENTRAL AND TRANSITION HARDWOODS OF NEW ENGLAND

These standards are intended to be implemented in the context of the landscapes where NEFF's lands occur, and so our management of NEFF Community Forests in the Central and Transition Hardwood forest types starts with an assessment of the landscape's current and anticipated future conditions. We identify which wildlife habitats and critical forest stand structures—defined below—are missing or inadequate in the landscape, and compensate for them in the management of NEFF parcels. In addition to implementing these standards, NEFF intends to maintain dual third-party certification of its lands. Exemplary Forestry in the Central and Transition Hardwoods includes:



Rose-breasted Grosbeak

## IMPLEMENTING BEST MANAGEMENT PRACTICES TO PROTECT AND IMPROVE FOREST CONDITIONS.

Employing accepted “Best Management Practices” to protect soils, riparian and aquatic habitat, special habitats, wildlife trees, and other resources.

## IMPLEMENTING ADVANCED SILVICULTURE.

Practicing forestry which, over time, results in:

- a. **Continuously improving forest stands** in terms of both quality and quantity.
- b. **Providing conditions which are well-suited to the umbrella wildlife species** known to be representative of the habitat needs of the great majority of native species.

### Umbrella Wildlife Species by Successional Stage

Successional Stage	Umbrella Wildlife Species	Target Habitat Block Size
Interior Forest	Scarlet Tanager, Wood Thrush, Black-throated Blue Warbler, tree-dwelling bats (multiple species)	40-50% of landscape managed for >250-acre blocks of relatively mature, interior forest
Early Successional	Golden-winged Warbler, Ruffed Grouse, Woodcock, New England Cottontail, Blanding's Turtle	30-40% of landscape managed for 6- to 25-acre blocks of early successional forest
Edge and Transition	Red Fox, Eastern Box Turtle, Rose-breasted Grosbeak, native bumblebees ( <i>Bombus</i> spp.)	5-15% of landscape managed for edge and transition stage forest resulting from the above early successional

- c. **Maintaining connectivity** between habitats.
- d. Achieving a **diverse size class distribution** of 5-15% of stands in seedlings, 30-40% in saplings and poles, 40-50% in sawtimber and including up to 10% of the landscape in large diameter multi-storied stands.

- e. **Growing tree species well-suited to each site**, e.g., matched to soil and physiographic conditions as well as expected changes in climatic conditions.
- f. **Stocking that fully occupies the sites**; this is an average of “B” line stocking for stands not currently being regenerated. For example, in 8-10” diameter stands of mixed wood this would be approximately 20 cords per acre. Adequate regeneration is considered to be 600 seedlings of commercial species per acre.
- g. **Growing and harvesting quality timber** at an average of 0.5 cords/acre/year.
- h. **Addressing climate change** by increasing the resilience to, adaptation for, and mitigation of climate change through forest management. For example, using forests and forest products—including products beyond solid wood (e.g., wood fiber insulation)—that can store more carbon and substitute for other more carbon-intensive materials like steel and concrete, thereby reducing greenhouse gas emissions. Because many stands in the Central and Transition Hardwoods are heavily stocked, managing to mitigate climate change requires special attention; additional information is available on the NEFF website.
- i. **Diverse management approaches.** In the long term, NEFF intends to manage significant portions of its properties using both the even-age (regular shelterwood) and multi-aged (irregular shelterwood) management approaches. Different approaches to management are called for to meet the needs of umbrella wildlife species and may also be needed to accommodate specific site conditions. For example, the creation of large blocks of early successional habitat by harvesting heavily may be limited to stands that are not heavily stocked.
- j. **Aesthetics.** Public support for forest management, its social license, depends in many cases on how forests look, particularly after harvest. In this regard, NEFF intends to manage its lands to maximize the appeal of managed forests to the public, including but not limited to their visual appeal, particularly in key areas—like attractive roadsides, trails and shorelines. This means harvesting carefully with an eye toward respecting ecological values, avoiding site damage and avoiding the appearance of carelessness.

More information and citations are available at [newenglandforestry.org/learn/initiatives/exemplary-forestry](http://newenglandforestry.org/learn/initiatives/exemplary-forestry).

*Note: These standards are intended to be refined as scientific knowledge improves.*

# HABITAT FOR TREE- DWELLING BATS

WRITING BY NEFF Ecologist Carla Fenner

By protecting New England bats' summertime forest habitat and managing it to meet their needs, we can help these little mammals withstand their greatest threat: White Nose Syndrome.



Potential roost tree with desirable features like exfoliating, peeling bark, and cracks and crevices.

There are nine species of bats found in New England, and they fall into two general groups. Both groups spend the summer feeding, roosting, and raising their pups in the forest. One group then migrates south for the winter and the other spends winter hibernating in “hibernaculum” or “hibernacula” (plural); places like caves, mine shafts, and occasionally even attics or barns.

Bats in the eastern U.S., particularly those that hibernate, have experienced devastating population declines since approximately 2005, when a fungus from Europe was introduced to a cave in upstate New York. The fungus, *Pseudogymnoascus destructans*, causes the disease White Nose Syndrome (WNS), so named for the white, fuzzy looking growth that appears on the face and sometimes other

bare skin of infected bats. Incredibly, WNS killed more than 95 percent of hibernating bats in some hibernacula within a few years of infestation. All species' populations have remained low since then, and some recent years' data suggest Little Brown and Big Brown Bat populations might be rebounding slightly.

Our responsibility at NEFF and as individuals who love the working forest landscape is to use forestry strategies that achieve both productivity goals and improve and expand bat habitat where possible.

We can't do much to protect overwintering bats, other than supporting efforts to limit disturbance to hibernacula. However, we can make a big difference when bats return to woodlands. High-quality

forest habitat for bats will promote strong, well-fed individual bats—bats with the best chance of withstanding WNS to reproduce and function as part of their ecosystem. Scientists, natural resource managers, and even state and federal regulations all recognize the importance of summer forest habitat to bats' survival.



An endangered Northern Long-eared Bat being safely held during a bat population survey. Photo by Carla Fenner.



## Bat Summer Season Ecology

As the weather warms, New England bats turn to forests for shelter and food.

The females of each species give birth to 1-2 pups per year, generally in June, and the pups are flightless when born. Multiple females and their offspring will congregate in a maternity colony in a particular roost tree until the pups have matured. Some bats return to a particular maternity tree for multiple years while keeping “back-up” secondary roosts nearby.

When choosing a roosting tree, bats tend to favor exfoliating or sloughing bark on both live trees and standing dead trees (called “snags”); bats also look for crevices and cavities in the trunk or primary branches.

Each evening, bats leave their roosts to eat up to 50 percent of their body weight—or more, if they are lactating females—in insects like moths, flies, beetles, and mosquitoes. In our landscape, one of bats’ best bets for an insect-heavy foraging spot is a structurally complex forest with ample understory strata where insects can fly without strong winds and move around on abundant tree leaves and twigs. In addition, bats forage along forest edge habitats, utilizing stream riparian corridors, ponds, hedgerows and even forest roads as flyways.

## Exemplary Forestry for Bats

Now that we understand why forests are crucial to bats, let’s consider how forest landowners, managers, and stakeholders in New England forestland management can help.

In both sets of Exemplary Forestry standards, there are strategies and best management practices that directly align with creating and improving bat forest habitat. Exemplary Forestry calls for:

- Retention of old- or late-successional “big old” trees likely to exhibit sloughing bark and deep bark furrows known to provide roosting habitat, especially the crucial maternity trees.
- Retaining or creating standing snag trees, as their presence throughout a forest stand increases the likelihood of roosting habitat, and also creates good habitat for many insects eaten by bats.
- Forest canopy gaps and irregular shelterwood. Long-term forestry that creates small gaps and expands on them with subsequent entries at least 15-20 years later ensures a diversity of tree sizes, heights, and ages; it also increases the speed of growth of trees left after the cut. This complex vertical structure within the stand leads to a moist microclimate and conditions that moderate wind and temperature



Little Brown Bat infected with WNS. Photo by U.S. Fish & Wildlife Service.

fluctuations, and the increased growth response means bigger trees. In other words, better roosting habitat and fantastic conditions for mosquitoes and black flies, the dread of hikers and loggers, but better than a buffet for bats.

- Seasonal restrictions on management activities to minimize environmental impacts. If feasible, landowners can avoid directly impacting roosting bats by avoiding tree cutting during the core of the roosting season, particularly in early- to mid-summer when pups are unable to fly out of roosts.

Through assessment and analysis, as well as close work with partners, NEFF is demonstrating how Exemplary Forestry that improves bat habitat also improves habitat for a wide range of other native flora and fauna. Amongst the dynamic and evolving process that is working forest stewardship, NEFF is at the forefront of creating landscape-scale improvements for Exemplary Forestry’s co-equal goals, and we look forward to creating better bat habitat as the new standards go into effect.

There has never been a more opportune moment to give our attention, time, and resources to bats, in recognition of the incredible role they play in New England ecosystems, in response to their severe population declines, and in celebration of bats’ rich life history. 🌿

**Please make a gift:**  
[newenglandforestry.org/support/donate](https://newenglandforestry.org/support/donate)

### HIBERNATING SPECIES

- Little Brown Bat (*Myotis lucifugus*)
- Eastern Small-footed Bat (*Myotis leibii*)
- Northern Long-eared Bat (*Myotis septentrionalis*)
- Indiana Bat (*Myotis sodalis*)
- Tri-colored Bat (*Pipistrellus subflavus*)
- Big Brown Bat (*Eptesicus fuscus*)

### MIGRATORY SPECIES

- Eastern Red Bat (*Lasiurus borealis*)
- Hoary Bat (*Lasiurus cinereus*)
- Silver-haired Bat (*Lasionycteris noctivagans*)

# MEET THE WHITE OAK

WRITING BY NEFF Director of Forest Stewardship Chris Pryor

The White Oak and its dense, heavy wood have long had ties to United States and New England history, particularly maritime history. Sturdy White Oak wood provided the hull planking and knees for the USS Constitution, the United States' oldest commissioned warship. This wood is so critical to the ship's maintenance that the U.S. Navy has set aside "Constitution Grove" on a 64,000-acre naval base in Indiana specifically to provide oak timbers for future work on the USS Constitution.

Some readers may also be familiar with the Charter Oak, a large White Oak that once grew in Hartford, Connecticut rumored to be the hiding location for the Connecticut Charter of 1662, a formal document from King Charles II recognizing Connecticut as a colony.

White Oak acorns were an important food source for many American Indian tribes of the Atlantic seaboard. People would soak acorns in a running stream or boil them to remove the tannins, which cause a bitter flavor. They would then shell and pound the acorns into a coarse meal or grind them into flour, which was used in a variety of porridges, soups, and stews.

## RANGE

The White Oak ranges from the Canadian border to the Gulf coast, and from the Atlantic to west of the Mississippi. It is also found north of the Great Lakes and up the St. Lawrence River valley in Canada. In New England, it is most common from central Maine down through southern and eastern New Hampshire and across Massachusetts, Rhode Island, and Connecticut. It additionally reaches north into New Hampshire and Vermont in the Connecticut River Valley and the Champlain Valley.

## WILDLIFE HABITAT

White Oak acorns are well known to be the most palatable acorns in the forest due to lower tannin levels, and they are consumed by more than 180 species of wildlife, from Wood Ducks on up to American Black Bears. Bumper crops of acorns occur periodically every four to 10 years. Leaves, twigs, and seedlings are also commonly browsed by White-tailed Deer, various rabbits, North American Porcupine, and North American Beaver. Blue Jays, squirrels, and the extinct Passenger Pigeon are or were all well known to disperse and bury acorns, which aided in regeneration.

White Oak is host to hundreds of native insects that makes it valuable to a wide range of bird species that feed on those insects. In the spring, you might catch breeding warblers or tanagers feeding on the caterpillars of numerous moths and butterflies that reproduce and feed on White Oak branches and leaves.

## AGE AND SIZE

White Oak is a long-lived species that can reach more than

600 YEARS IN AGE

It grows to around

80-100'

with a diameter ranging from

2-4'

although it can grow larger under the right circumstances, especially in the Ohio River Valley where soils and growing conditions are optimal for White Oak.

## IDENTIFICATION

White Oak is a deciduous tree with oval shaped leaves, each with seven to ten rounded, finger-shaped lobes. The depths of the sinuses between the lobes can vary. Some leaves growing at the top of the tree or in full sun might have deeper lobes while those growing lower on the tree and in more shade can have shallower lobes. The bark of White Oak is a light gray color that is tight when young but forms loose strips or blocks as the tree ages.





## GROWING CONDITIONS AND MANAGEMENT

White Oak grows in a variety of site conditions from moist bottomlands to sandy, gravelly uplands. It is generally not limited by poor soil nutrients and can therefore outcompete other species on degraded sites, making it a candidate for reclaiming old mines and gravel pits.

White Oak is generally managed through even-aged techniques due to its low-to-moderate shade tolerance, meaning young White Oaks wouldn't get enough light to grow if surrounded by a range of taller trees in an uneven-aged stand. Regenerating—or regrowing trees after a harvest or natural disturbance—from seed is a challenge due to unpredictable acorn crops and damage or consumption of those acorns by insects, birds, and mammals. NEFF prefers to use a number of preparation harvests to establish enough seedlings before finally releasing that regeneration, i.e., removing more of the overstory to give those established seedlings additional light and resources. White Oak also regenerates from stump or root sprouts following a harvest or fire. The exclusion of fire throughout much of its range is thought to be a major challenge in adequately regenerating our White Oak forests.

## WHITE OAKS ON NEFF LANDS

Want to see White Oaks on NEFF forestlands? Head to our Mixter Nields Memorial Forest in Hardwick, MA, or our Niantic River Headwaters Community Forest in East Lyme, CT.

## FUN FACTS

White Oak lumber has long been used in a variety of ways, including furniture, flooring, and cabinetry, but perhaps most uniquely in cooperage, or the making of barrels and casks. It is currently the major source of wood for barrels used to age alcohol due to the woods' unique characteristics and the flavor it imparts to the fermenting wine and whiskey.

The White Oak tree shown here is an accurate depiction of trees that don't grow in forest conditions. A forest-grown White Oak would have a trunk nearly two times as tall as the trunk shown here, and would have 10-20 percent less leaves and branches in the lower crown, or the lower portion of the leafy area.

Leaf photo by James St. John/CC BY 2.0, bark photo by Derek Ramsey/CC BY-SA 2.5.

# WRITING THE LAND

WRITING BY NEFF Communications Manager Tinsley Hunsdorfer  
and poets Lori Landau and bg Thurston

## A partnership between New England's environmental and creative communities

In fall 2020, just as this country's third COVID-19 wave was picking up steam, NEFF joined a new collaborative project designed to spread the word about land conservation while bringing more poetry into the world.

Called Writing the Land, this collaboration between New England artists and land trusts works to raise awareness of successful efforts to protect local land, ecosystems and biodiversity. Poets adopt one or more of a land trust's conserved properties, and then visit the lands and create poems inspired by them; the poems are in turn published at [writingtheland.org](http://writingtheland.org) and made available to the land trusts.

Six poems about NEFF forestlands and one year later, we are grateful to have been part of the inaugural session of Writing the Land. We are particularly grateful to Lori Landau and bg Thurston, who wrote those six poems—each of them thoughtful and striking—during the long COVID winter. These beautiful, nature-rich pieces explore ideas and experiences many readers will find relevant to their lives and to this strange pandemic time.

All of the poems are printed in full here and grouped by forestland. NEFF made two properties available for adoption through Writing the Land; bg Thurston chose Lincoln Davis Memorial Forest in New Hampshire, and Lori Landau chose Niantic River Headwaters Community Forest in coastal Connecticut.

## Lincoln Davis Memorial Forest

This beautiful, mountainous New Hampshire forestland is NEFF's oldest property, and it has remained busy since NEFF acquired it in 1945 due to regular harvests conducted to Exemplary Forestry standards, management activities that have improved wildlife habitat, and frequent trail use. Lincoln Davis offers hikers a view of Mount Monadnock, and its Berry Pasture Trail intersects with the popular Wapack Trail. The forest has also come to exemplify the outsize ecosystem impact protected land can have when it's conserved collaboratively and with an eye to the wider landscape. Lincoln Davis is partially surrounded by a series of contiguous protected forestlands with additional conserved land nearby.

## THE LOVE OF PINECONES

by *bg Thurston*

for Sharon H.

Souvenir of the forest—  
where every tree is its own  
miracle. Symbol of rebirth,  
resurrection, and immortality,

the cones we see scattered  
in these woods are female.  
The males, having given up  
their pollen, disintegrate

then disappear—leaving  
the mother cones laden  
with seeds hidden beneath  
rows of overlapping scales.

A perfect Fibonacci sequence,  
each cone forms a sturdy  
vessel, protecting its treasure  
by closing tight in rain or cold.

Native Americans gathered  
them for food and medicine,  
burned them as incense to pacify  
ghosts and banish nightmares.

Pinecones represented Venus,  
the Roman Goddess of Love,  
while Celts placed them under  
their pillows as fertility charms.

Someday, when you find one  
hidden inside a forgotten pocket,  
remember where it came from  
and the promise it still holds.

## BERRY PASTURE TRAIL, SHARON, N.H.

by *bg Thurston*

Begin at the clearing where bluets  
and buttercups bloom underfoot.

Find a narrow trail hidden by oak,  
hemlock, white pine, and birch.

Mossy stones erupt along your path,  
as blue blazes dot the uphill climb.

A sudden pond appears, reflecting  
the interlaced hemlock branches.

Pause here to listen to the wood thrush  
recite his vowel sounds under a sky

troubled by clusters of dark clouds  
as rain begins to spatter treetops.

Keep going, though now your breath  
has become much harder to catch.

Stand where blueberries once thrived,  
look toward Monadnock's silhouette

and remember all those mountains  
you hoped to climb someday.

Discover what you have dropped  
as you turn to descend the summit—

a silver spinner ring you fingered  
the whole of your worried last year.

No more than a cherished token  
now returned to this wild universe.

A small 'O' that the moon will find  
shining silent in the litter of leaves.

## THE SILENT POEM OF THE FOREST

by *bg Thurston*

A lone bronze soldier greets us,  
holding his rifle and patriotic flag  
in a tribute to another Civil War.

Uncertain of boundaries, we follow  
the snow-covered road that divides  
a stark wilderness of oak and fir

until we enter stillness, undercut  
by a low thrum of far-away traffic.  
No birds can be heard, no whisper

of wind, only the crunch of boots  
threading through monochromatic trees  
left from last year's logging. An upheaval

of wood settles into its new landscape  
as we tread gently under widow-makers  
and around trunks uprooted by storms.

Everywhere, stone walls remain  
where hilly pastures once prevailed.  
Through the pines, the sun burning—

as its molten glow sinks into the horizon  
and though we know we should leave,  
we persist despite frozen ink and fingers.

Before dusk, we return to the world  
where history keeps on writing itself,  
But these woods will call us back

to behold these places of furious beauty  
where nature struggles to remind us—  
here is where our true battles lie.

# Niantic River Headwaters Community Forest

Located about five miles from Niantic Bay—into which the Niantic River flows—and the Connecticut coastline, the 200-acre Niantic River Headwaters Community Forest is home to the Niantic River’s early stages and a dramatic ridge line, as well as diverse wildlife, plant communities, wetland resources and topography. The conservation of Niantic River Headwaters Community Forest ensures that water flowing from a portion of the headwaters will continue to be filtered by the forest and natural wetland habitat, thereby helping to maintain water quality in the river’s estuary.

## SPACE BETWEEN

*by Lori Landau*

Nothing more than wren singing,  
nothing less.  
in thicket of trees.  
me  
drinking the sound.

## ODE TO ROBIN

*(State Bird Of Connecticut)*

*by Lori Landau*

teach me  
how to have wings  
to soar over moss and stone  
see the river whole  
fly forward into light  
disturbing nothing but air.

## SOME THINGS CANNOT BE STOLEN

*by Lori Landau*

Green cordgrass slows  
the banks of  
long-neck waters  
at the edge of trails,  
ancestral home  
to the Nehantic.

One third of these Wetlands stolen.  
Settlers swindled the sacred stone  
tore peace from the pines  
plundered quarries, splintered trees.

Oak resisted  
dug roots.  
Nourished itself  
in the brackish tide.

I traveled here from a distance  
to witness resilience  
be still with my losses

learn from this old tree

how to plant in shattered soil  
and begin again.

Learn more about Writing the Land and explore the 10 other participating land trusts’ poems at [writingtheland.org](http://writingtheland.org)



## Poet Biographies

**Lori Landau** (She/her, Ki/Kin) is an interdisciplinary artist. Her work is grounded in her contemplative practices and training in compassionate integrity. Her writing can be found in a variety of magazines, anthologies and blogs, and her art has been shown on both coasts. She holds an MFA in Interdisciplinary Arts from Goddard College with a concentration in Decolonial Arts Praxis. [Lorilandauart.com](http://Lorilandauart.com).

**bg Thurston** now lives on a farm in Warwick, Massachusetts. In 2002, she received an MFA in Poetry from Vermont College and she has taught poetry at Lasalle College, online at Vermont College, and currently teaches poetry workshops. Her first book, *Saving the Lamb* (Finishing Line Press) was a Massachusetts Book Awards highly recommended reading choice. Her second book, *Nightwalking*, was released in 2011 by Halesy.

Niantic River Headwaters Community Forest, photo by Tinsley Hunsdorfer.



## The Window of Opportunity

NEFF's programmatic focus on forests, Exemplary Forestry and climate over the last five years has positioned us to make a significant contribution to the fight against climate change. After conducting careful scientific analysis and modeling based on NEFF's decades-long management of its own forests, NEFF scientists now recommend a set of forest-based climate solutions that can offset fully 30 percent of New England's required reductions in energy-related emissions in the next 30 years.

This "30 percent solution" is a game-changer with global consequences, and NEFF and its partners can realistically achieve it with continued financial support.

Multiple events are converging to provide a window of opportunity in which we can have a measurable impact on the climate crisis. The signs of a changing planet are becoming more apparent—including the unprecedented rainfall and flooding caused by Hurricane Ida remnants in the Northeast—which has increased media coverage of climate change's impacts in the U.S., as well as public and political attention on practical fixes. Climate experts are giving increasing weight to the importance of natural climate solutions, some of our easiest and most cost-effective mitigation options. And at the same time, the Biden Administration is pushing a climate agenda forward that includes the 30x30 Initiative, America the Beautiful Campaign, and infrastructure and reconciliation bills—all of which will make a major investment in climate action.

NEFF has prepared for this moment and we're ready to kick up the fight against climate change today. Now is the time to act, while the window of opportunity is still open and we've got the momentum we need to make meaningful change. Please act with us and give as generously as possible this year. Donate using the enclosed envelope or by visiting [newenglandforestry.org/support/donate](http://newenglandforestry.org/support/donate)



NEW ENGLAND  
**FORESTRY**  
FOUNDATION

32 Foster Street | P.O. Box 1346 | Littleton, MA 01460  
T 978.952.6856 | F 978.952.6356 | [newenglandforestry.org](http://newenglandforestry.org)

NONPROFIT ORG  
U S POSTAGE  
**PAID**  
THE MAILING CENTER  
05641

