The Yale Forests Management Brochure

The Forest School, Yale School of the Environment

360 Prospect St. New Haven, Connecticut, 06511

Executive Statement

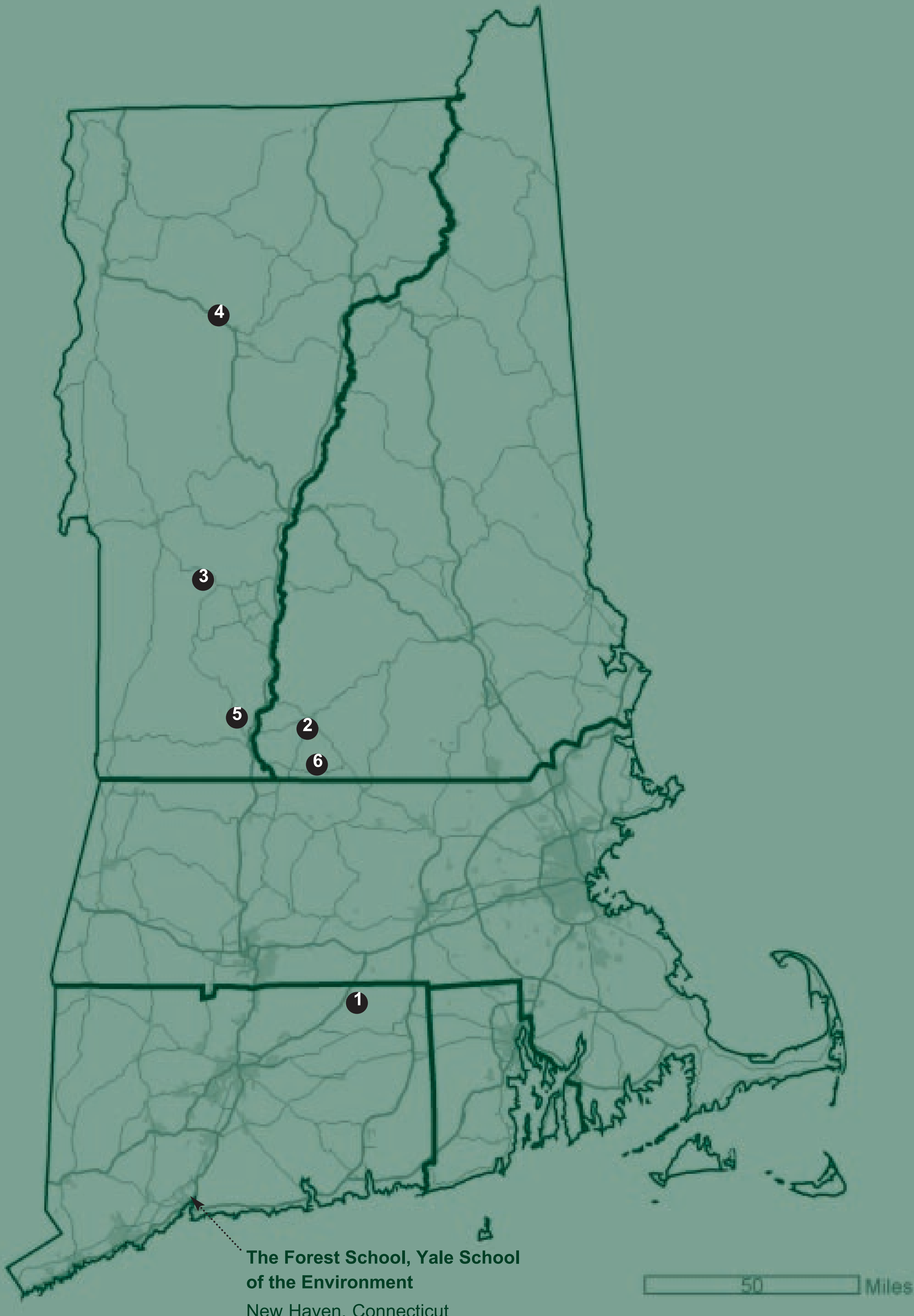
This brochure is a management summary of the Yale Forests System of the Forest School within the Yale School of the Environment. This document gives the institutional history of the Yale Forests, including both human and ecological narratives, from its inception in 1913 through to the present day. Further, this document provides the management guidelines, philosophies, and programs currently in use to achieve the Yale Forests' mission of education, demonstration, and research to advance the practice sustainable forest management.

Adaptive management is a core principle underpinning all of the Yale Forests' administration. As such, the management guidelines and objectives presented in this document are not used in a prohibitive or statutory manner. Rather, these management guidelines and objectives serve as a broad framework to help support finer-scale decision making and protocols enacted by the Yale Forests management staff. This is a living document, designed to be periodically updated with the best available data and information related to the Yale Forests, and maintained to preserve the institutional memory across successive management staff.

Updated by Matt Valido, Yale-Myers Forest Manager

September 2021

The Yale Forests System



Introduction

OVERVIEW

The Forest School at the Yale School of the Environment (YSE) owns and manages 10,777 acres of forestland in Connecticut, New Hampshire, and Vermont. The goals of this ownership are to provide educational, research and professional opportunities for faculty and students, and to contribute to the field of sustainable forest management as a whole. The Yale Forests are managed for and consists of a diversity of species common to southern and northern New England. Almost all New England soil conditions are found throughout these forests from wetlands to alluvial sand deposits, and to glacial tills. Rivers, streams, ponds and ephemeral water bodies are also common features throughout, which make the Yale Forests important members of regional watersheds.

Faculty and students use the Yale Forests as a laboratory for teaching, management and research. A member of the faculty serves as its Director and students carry out all management as part of of their experiential learning process. The forest is maintained as a working forest, which includes selling timber and non-timber forest products from the land.

Introduction *continued*

Size and Location of School Forest Holdings

There are seven tracts of land in the Yale Forest system spanning six managed forests. The following is a description of the size and location of each forest.

1 Yale-Myers Forest

The largest parcel is the Yale-Myers Forest, which covers 7840 acres (3213 ha, 12.2 sq. mi.) in the towns of Ashford, Eastford, Union, and Woodstock, Connecticut in Windham and Tolland Counties. In terms of education, research, and harvesting operations, this parcel has the most activity of all the parcels. It is comprised mainly of mixed hardwoods on glacial till soils with a large component of hemlock, several scattered white pine stands (mainly of old field origin), and occasional red pine plantations started in the 1940's after field abandonment. There are numerous small ponds and most wetland areas have been impacted by beaver activity. Located in one of Connecticut's most remote areas, the majority of this parcel is surrounded by a state-owned park and forest, and by private forest holdings.

2 Yale-Toumey Forest

The Yale-Toumey Forest is 1930 acres in area (764 ha, 2.22 sq. mi.) and is located in the towns of Keene and Swanzey New Hampshire in Cheshire County. The forest is hardwoods mixed with mostly white and red pine, all of plantation or old-field origin and as a result of hurricane blowdowns. Large areas comprised of glacial sandy outwash of the Ashuelot river valley promote its coniferous forest. In the area surrounding the city of Keene, the forest has become more like a suburban park, where residents of the city hike, jog and bike on forest trails. The Society for the Protection of New Hampshire Forests holds a conservation easement over approximately 70 acres of the Yale-Toumey Forest.

3 Bowen Forest

The Bowen Forest covers 462 acres (184 ha, 0.7 sq. mi.) in Mt. Holly Vermont in Windsor County. This forest is mainly northern hardwood with some spruce plantations. It is located in a saddle near Okemo Mountain.

4 Crowell Ravine

Crowell Ravine is 75 acres (31 ha, 0.1 sq. mi.) in Duxbury Vermont in Washington County. Robert Crowell donated this tract in December 1983. It is a northern hardwood forest that was cutover about 70 years ago. The land surrounds a steep ravine with water cascades at the bottom.

5 Crowell Forest

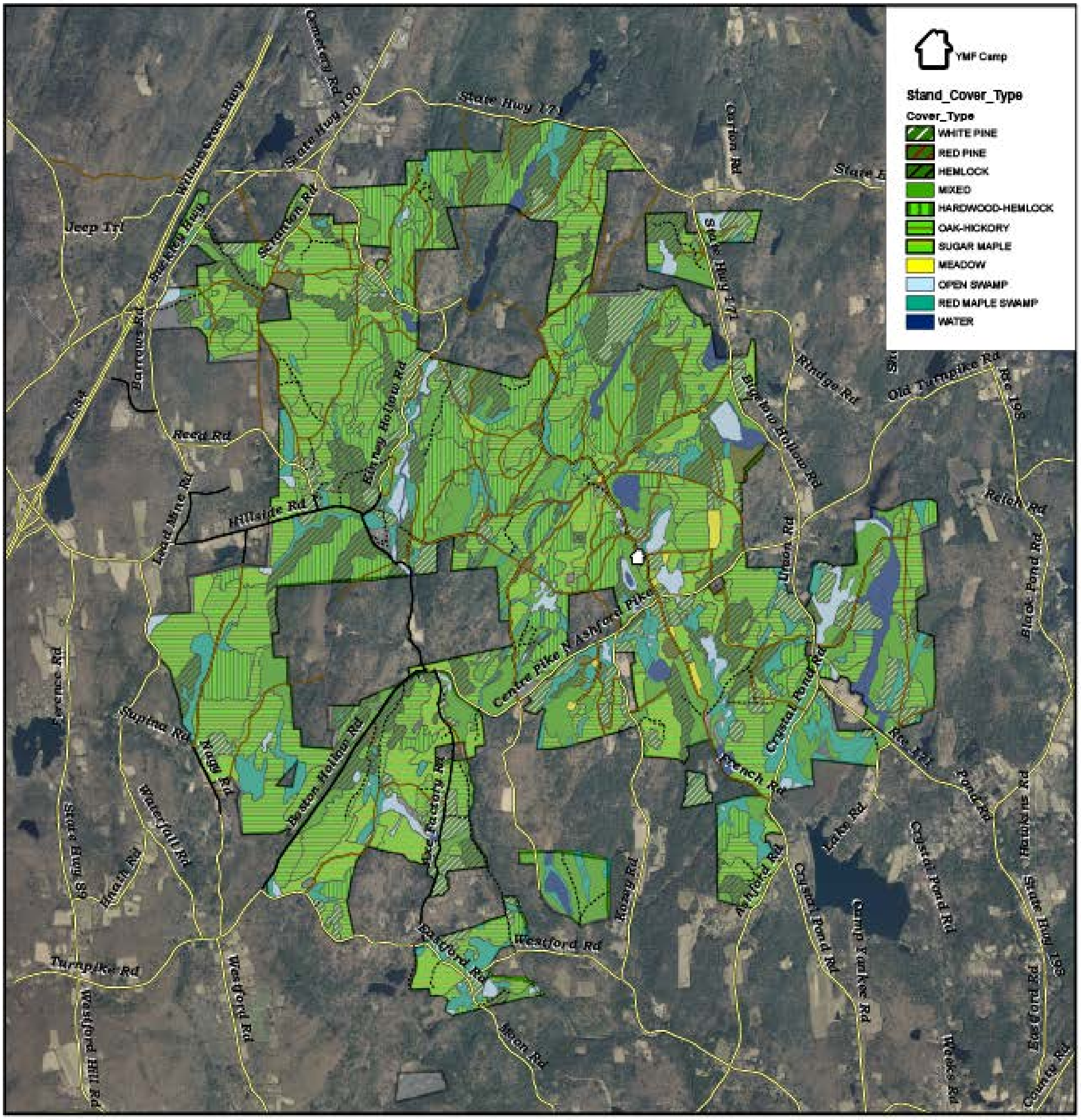
Crowell Forest is 285 acres (117 ha, 0.4 sq. mi.) in Dummerston, Vermont in Windham County and consists of two tracts about one mile apart. It is mainly a hardwood forest with some old-field white pine stands. Robert Crowell donated both tracts of land in Dummerston. The Vermont Land Trust holds a conservation easement on the smaller of the two tracts in Dummerston.

6 Goss Woods

Goss Woods is 185 acres (76 ha, 0.3 sq. mi.) in Richmond, New Hampshire in Cheshire County. James H. Goss (Yale College, '30) donated the Goss Woods parcel to the School in December of 1986 in memory of his wife, Doris B. Goss. Most of the land had been selectively cutover in the 1970s. This hardwood forest has a large hill at one end.

Yale-Myers Forest

Yale School Forests



Miles
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Kilometers
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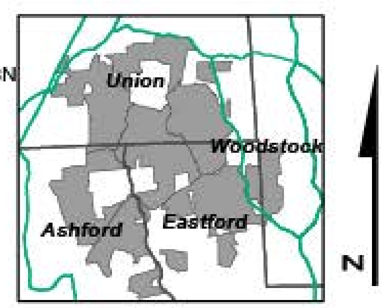
Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Author: J. Wikle Yale School Forests
Date: Thursday, March 09, 2017



Forest History

Starting in 1913, the Yale School of Forestry began to acquire forestlands throughout New England, mostly through donations from alumni. Throughout the first several decades of ownership, these lands were more of a financial burden to the school than an asset. The chief accomplishment during the past 50 years has been converting the Yale Forests from a sink to a source of money. Except for the tightly restricted Bowen Memorial Fund and the Myers Forest Endowment Fund, all of the endowment funds given in the early days for the support of the Yale Forests are now treated as part of the general endowment of the School. At the same time, the Forests have been made to become more a part of the program of education and research. In 1954, when Dr. David M. Smith became the Director of the Forests, the Forests were regarded mostly as a liability and there was frustration over impediments that then existed against disposing of the Yale-Myers Forest.

In brief, the financial problems were solved by economies designed to bridge over to the time when the inexorable growth of trees would restore the income producing capacity of the Forests. The chief economy was effected by not replacing resident per-sonnel when they retired but all other costs were cut as well. The Yale-Toumey Forest became self-supporting in 1955 and about a decade later, the Forests collectively became self-supporting.

One management objective is the production of income to support the educational mission of the School, yet this is dependent on current timber markets and related income. It is a policy that most management on the Yale Forests is conducted by students to gain hands-on, professional experience in the field of forestry. The faculty members concerned with silviculture and forest management have traditionally been the Directors. The present policy of paying students and some faculty rather than special staff or consultants to manage the Forests is an attempt to combine the solution of financial problems with academic purposes. The histories of the three largest forestlands are described below.

Yale-Myers Forest

Yale-Myers forest was established in the early 1930's through the generosity of a YF&ES alumnus, George Myers (MF '01). This forest has been managed for over 90 years as a multiple-use, working forest. This Forest is one of the largest privately held and professionally managed forest parcels in the region and is the largest physical possession by area of Yale University.

Yale-Myers Forest was assembled from about 100 former farm holdings by George H. Myers, a member of the first class that graduated from the School in 1901. He gave the Forest to Yale in the early 1930's. As is true with all the Yale Forests, it is managed as a working forest and used for education, research, and demonstration. Yale-Myers Forest is nearest to the Yale campus and thus also serves as a site for public engagement and outreach through the Yale Forest's Quiet Corner Initiative (QCI).

The history of human land-use at Yale-Myers has significantly shaped its forest vegetation, where traces of past land-uses remain embedded in the forest's succesional trajectory to the present day. The Indigenous Peoples of the Nipmuc Nation stewarded and inhabited the original landscape of Yale-Myers Forest. Within certain areas of the landscapes, Indigenous practices of swidden agriculture and use of fire to promote hunting grounds, added rich structural and species diversity to the forest. These Indigenous land stewardship practices promoted a savannah-like structure to the forest which featured large, fire-tolerant Oak, Hickory, and Chestnut canopies above open, grassy understories. This unique type of forest composition existed in a diverse mosaic of other forest compositions, particularly contrasting against mesic forest types; denser mixtures of fire-sensitive species of Birches and Maples that occupy many vertical strata and contribute to a dark, moist forest character. Stands of Eastern Hemlock also contribute a unique composition within this mosaic, signifying sites of cold and wet microclimates.

Human land-uses within Yale-Myers and the Northeast region as a whole significantly changed when Euro-American colonists displaced the Nipmuc Peoples, at which about two-thirds of the forest was cleared for pasture or cultivated agriculture between 1730 to 1850. Due to the scale and intensity of colonial agriculture, the formerly diverse mosaic of the forest landscape was drastically transformed into a more homogenized landscape of mostly pasture and grazed brush meadow, with some tilled agricultural fields.

Introduction *continued*

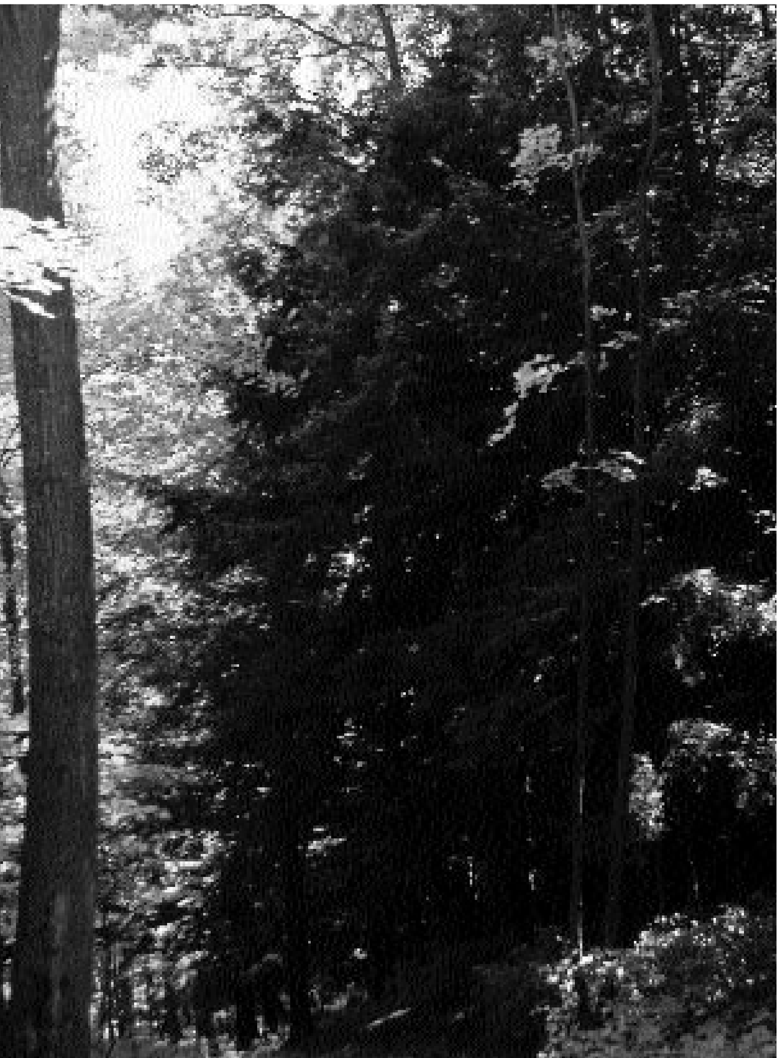
However, cultivated agriculture as the dominant land-use of the region began a gradual decline when it became cheaper to transport food via canal and rail from the Midwest, rather than to transport and grow it among the less productive, rocky New England soils. The re-establishment of forest vegetation was slowed from about 1850 to 1870 by a period of sheep-raising, but that succumbed to competition from the Southwest, Australia, and New Zealand where sheep can live outdoors all year long. Stone walls with double rows of stones usually denote land that was plowed to plant crops; whereas stone wall with single rows were used for pastures, which did not generate as many stones. If you see small piles of stones on boulders, this usually means that people mowed hay with scythes in those places. If the scythe hit a small stone one picked it up and put it where it wouldn't nick the blade the following year.

The first kind of forest that came back after agriculture was usually pure "old-field" white pine. Conifers invade the grass of abandoned fields more readily than hardwoods and grazing animals prefer hardwood seedlings to conifers. Much of the White Pine had crooked stems from attacks of the White Pine Weevil, an insect that kills the leading shoots of open-grown pines. There was so much of this Weevil-effected pine that from about 1890 to 1930, southern and central New England was a center of the American container industry (before the advent of corrugated carton packaging). Many of the White Pine stands were eliminated by very heavy cutting that released Oak and other hardwoods growing beneath.

In fact, what George Myers purchased in 1913-1930 was mostly heavily cutover land. The highest price paid for any acre was $15 and much of it probably cost less than $4 per acre. The fact that there was little timber old enough to harvest until about 1960 made ownership of the Forest such a serious financial problem for the School that it was regarded as a white elephant in the classic sense of the term.

An intensive program of pine pruning, timber stand improvements, and crown thinning started on the Forest in the 1960's and has now covered all of the production areas of the forest. Old-field pine stands now comprise a minority of the landscape that is now mostly dominated by 100+ year-old oak-hardwood stands. More recently, the movement of Red Oak veneer logs onto the international market have alleviated the financial gloom that once hindered the management of the Yale Forests in the mid 20th century, however the loss of competitive local timber markets and regulations on log trucking have reduced the profitability of timber in recent years, as compared to the boom of Red Oak prices in the early 2000s. Additionally, the financial recession of 2008 compounded the already hindered local timber market for the Forest.

Once the White Pines had shaded out the grasses of abandoned fields, hardwoods and Eastern Hemlocks could become established beneath them. Which burgeoned after release once the pines were harvested. Starting in the late 1990's, the overall forest composition started to feature much more natural mixtures of hardwoods and hemlocks with a few scattered pines, which often tower above the other trees. Most of the present stands of trees on the landscape are of about the same age because they started after very heavy cuttings between 1890 and 1910. A program has started to replace the old stands with a series of new ones that will ultimately have all age-classes from 0 years to 60 years for White Pine, and anywhere to 80 or 120 years for hardwoods (depending on site productivity).




Introduction *continued*

Previous page, clockwise from top: **Historic photos of old-field pine dynamics at Yale-Myers. Ten-year-old white pine regenerating on an abandoned pasture; A 35-year-old white pine stand originating after pasture abandonment; A 100-year-old mixed hardwood-hemlock stand that was released after heavy cutting of white pine in 1910.**

The creation of a heterogeneous forest landscape may not be completed until about 2070. There is a large cohort of single-aged trees that came up after the devastating 1938 hurricane, but almost all other stand cohorts that have not been regenerated yet date back to earlier in the 20th century.

The mixture of species in these forests is very complicated and the different species interact with each other in surprising ways. Many fundamental paradigms within the field of temperate forest ecology have arisen from research conducted and knowledge gained from studying Yale-Myers' complex ecosystems, which continue to contribute to the field as a whole.

Yale-Toumey Forest

Former Dean James W. Toumey of the Yale University School of Forestry set up this 1,930 acre forest as the Yale Research and Demonstration Forest in 1913. James W. Toumey was a prominent figure in the field of ecology, have authored the nation's frist text on Forest Ecology, and was a founding member of the Ecological Society of America and of the Society of American Foresters. The nucleus was several tracts donated by George H. Myers, who had started purchases in 1908. Most land acquisitions had been completed by 1928, but an additional 514 acres was added in the year 2000 through a land swap with a non-profit.

This site was chosen because it was on a major highway accessing to the White Mountains and thus suitable as a demonstration site. In those times, the Northeast was deemed the most promising area for long-term forestry because the wetter climate made fire, and its perceived risk to timber resources, less prominent to the other timber producing regions of the Southern and Western US.

Central New England also had large areas of pine growing on abandoned farms. Much of the Toumey Forest is on relatively dry soils where it is comparatively easy to keep the aggressive, moisture-loving hardwoods from overwhelming young White Pines.

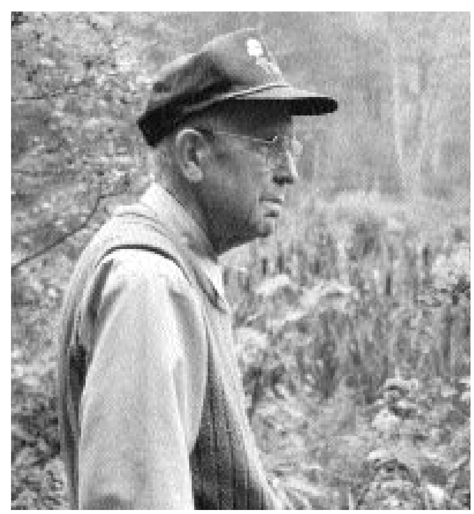
When the Yale-Toumey Forest was established it was virtually all in land that had been recently clearcut or in young stands of crooked old-field pine. Gray Birch covered much of the young pine regeneration in the abandoned fields or on the clearcuts. Much of this pine was released by various kinds of judicious partial cutting and release treatments. Currently, most of the 1,930 acres are covered with white pine and other softwoods, the result of a large-scale experiment in growing pure conifer stands.

This is the most urban of the Yale Forests; the suburbs of Keene surround it on three sides and there is pressure to use some of the land for purposes other than forestry. The greater Keene area became highly developed in the 1970s and 1980s through industrial rebirth, shopping centers and strip development along highways.

Bowen Forest

The Bowen Memorial Forest was given to the School in 1924. Edward and Elma Bowen donated the Forest in memory of their son Joseph Brown Bowen. Joseph Bowen was a graduate of the Forestry School (MF, ’17) and died in service during World War I. There has been active timber harvesting on the Bowen Forest since the late 1950’s. Much of the land is comprised of northern hardwoods (beech, Sugar Maple, Yellow Birch) with some spruce and fir.

James W. Toumey, 1900. First Director of the Yale Forest system and Professor of Forest Ecology from 1908-1930.



David Smith, Morris K. Jesup Professor of Silviculture, directed the Yale Forests from 1959-1990. He also authored multiple editions of the nation's main silviculture textbook, *The Practice of Silviculture*.

Management Goals and Objectives

GOALS FOR THE MANAGEMENT OF OUR FORESTS:

Education, demonstration, and research

To provide:

1. **A hands-on, working (managed) forest laboratory for learning and demonstration;**
2. **A permanent, fully owned site for scientific research, especially one that extends over several decades;**
3. **A financially sustainable asset of the school.**

And to maintain:

4. **The overall integrity and health of the forest ecosystem dynamic.**

These goals should be achieved within the context of sound, defensible land stewardship.

SPECIFIC OBJECTIVES

for the Yale Forests

1 The forest ecosystem dynamic paradigm is used in formulating management decisions.

Requirements for this objective:

a. **The impact of management (both experimental and non-experimental) on the ecosystem as a whole is to be considered throughout all decision making**. Many activities will have effects (both positive and adverse) on different aspects of the ecosystem. These effects will influence the long-term use of the land, and need to be considered for future instruction and research.

b. **No activity should knowingly eliminate a species.** The presence of small populations of particular site ecologies, or unique native species of plants or animals may result in either a preserved area where no active management takes place or areas with special management measures or restric-tions to protect the species.

c. **Active management should only occur in areas where a positive future benefit is likely.** Some areas are better left alone rather than actively managing them for no apparent gain.

2 All faculty members of the School should be able to use the Yale Forest system for any instruction or research that can be carried out on New England forestland

Requirements for this objective:

a. **A variety of stand conditions across a variety of topographic and soil conditions.** This includes a diversity of age classes, species composition, vertical foliage distribution, and stem density. This variety is needed for plant and tree studies as well as wildlife studies requiring different habitats.

b. **Large and replicated tracts of treated (manipulated) stands spanning a variety of topographic and soil conditions.** Many disciplines require large tracts (eg 50 acres) of each treatment, or resultant stand structure. These disciplines include: hydrology, forest ecology, wildlife biology and management, recre-ation, engineering and economics.

c. **"Normal" working forest conditions. It is easier either to discuss special cases in the classroom or in con-junction with a field trip.** We need to provide many examples of intelli-gent, but typical management situations so that our students can better understand the role and significance of special cases. An exception to this requirement is when faculty members feel that certain special cases of stands or management techniques do not exist on other land. When this occurs we should strive to use a small part of our own forest for this comparison. Given the acreage constraints of our own land we should try to use existing special cases on other land whenever possible.

d. **Flexibility.** Research initiatives and funding possibilities sometimes arrive with little lead-time and narrow fiscal windows. It is imperative that we maintain flexible forest conditions and working plans to accommodate a wide range of research needs. Large amounts of land with abnormally high or low amounts of certain species (either plant or animal) or abnormal stand or habitat structures that can not be quickly restored should not be maintained unless the situation is truly unique and does not exist on non-Yale land available for research. Maintaining non-unique, but unusual situations that can not be rapidly changed over large areas limits the use of our land to a small number of specialized research opportunities. Special situations should be created in response to an existing or potential research need that a specific faculty member or faculty group wants to explore rather than general anticipation by faculty members not likely to be involved in the research.

e. **Historic documentation.** Records need to be kept such that all management activities and changes in forest structure are documented. Stand and compartment histories are frequently needed for research studies. Documentation includes quantitative data, written descrip-tions, maps, and photos. Copies of all reports and research papers covering work conducted on the forest should be maintained. Monitoring and inventory data should be col-lected in a cost-efficient manner according to the specifications of individual faculty members who need or want the data. Faculty members that request this type of data need to be directly involved in collection and analysis. They should also provide a copy of the data for the use of others of any analysis that is performed. All records should be maintained in a manner that makes them readily accessible to any faculty member who needs them.

Management Goals and Objectives *continued*

f. **Willingness to experiment.** Consideration and openness needs to be given to experiments which involve treatments that are not readily accepted among working professionals. Whenever possible these experiments should be con-fined to small areas of land to avoid conflict with other uses needed by other faculty members. Experiments using innovative, unorthodox techniques are seldom welcome on other people's land. These experiments need to be carefully supervised by specific faculty members who either have the required expertise themselves or have a working relationship with another researcher who does. Responsibility for the maintenance and consequences of these experi-ments should rest with the specific faculty member involved, but must not jeopardize the long-term condi-tion of the forest.

g. **Destructive sampling cannot be discouraged.** Many times instruc-tion or research can be enhanced by the destructive sampling of trees, other plants, or animals. This activity is often impossible or difficult on other people's land. Any destruction should be justified as necessary to meet the instruction or research needs of the faculty member, must not interfere with the existing needs of another faculty member, must not jeopardize the long-term condition and objectives of the forest and must be carried out in accordance with all laws and University and Yale Forest guidelines and regulations. Large-scale destructive experiments requiring more than several hundred acres would be difficult to accommodate given the multiple objectives of the Yale Forest system.

h. **Whenever possible, students should be included in meeting faculty member objectives.** The instructional potential of the Forest will be enhanced if students are used in faculty work and faculty members supervise student projects within their own areas of expertise.

i. **Facilities should be maintained (or constructed) only as dictated by instructional or research needs.** Money should be allocated to buildings (including classrooms, living areas, laboratories, and storage space) when necessary. Given the difficulty of maintaining structures away from New Haven, temporary solutions should be explored before the construction of permanent facilities.

3 It should be possible for any faculty member of the School to use the Yale Forest system to develop or practice professional management expertise

Requirements for this objective:

a. Management activities should be conducted in a professional manner. The "working forest" character of the forests should be maintained. All operations should follow normal business and legal constraints to parallel real-world forest management. Whenever possible we should avoid employing special legal exemptions and unusual financial benefits given to universities of our type so that management experiences on our land are applicable to other forest ownership types. Care must be taken, however, not to set any legal precedents that might adversely affect other University activities.

b. Association and engagement should be made with local community members and organizations devoted to forested land management. Management of our land needs to be carried out in association with other landowners. It is important that faculty wanting management experience understand which practices are commonly accepted and which are different and perhaps innovative. It is also important for other land managers to see and understand management practices on our land so that faculty can obtain feedback and input concerning practical implementation.

c. Non-experimental management practices be conducted without the influx of external capital.

As a faculty we should practice management in a "real" sense. Although the Forests as a whole may have an operating deficit because of the research and instruction components of the objectives, fundamental management and stewardship (not necessarily specific practices) should be at least "break-even".

4 All faculty members of the School should be able to establish research plots (either long- or short- term) without fear that the study will be destroyed before completion.

Requirements for this objective:

a. Faculty members need to discuss their research needs with the Director of Research and management staff before establishing plots. It is important that the location, expected duration, and needs of studies be coordinated between multiple uses.

b. Plot locations need to be marked and mapped for use of all faculty. Long-term security is based on knowing the location and purpose of each plot. This data is managed by the Director of Research.

c. Management changes (including land sales) that affect the integrity of an ongoing research project are only made when the best interests of the entire School are at issue. If a faculty member responsible for a research project feels that the Director or the Dean is initiating a change in land use or management that will adversely affect the project he or she may appeal to the research committee and Director of Research.

5 Management practices should be used to sustain or increase the value of the Yale Forests.

Requirements for this objective:

a. Forest managed in a way to return positive value cash flows to support Yale Forest programming and ownership costs. Although increase in value is based on a combination of land value, growing stock value, and cash flows, any revenue gained from timber sales should be returned directly back into the Yale Forests to cover annual ownership costs and activities that enrich the value of the Forest system overall.

b. When unusual circumstances occur attempts to "lock in" the return should be explored. This is especially true in terms of short-lived market conditions for certain prod-ucts. It could also include transac-tions such as the sale of develop-ment rights during high real estate markets. Land ownership should be maintained and outright sale of land prudently considered.

c. Inventory estimates be made on a regular basis. Reliable estimates of all products (and potential products) with a monetary value should be made on a periodic, scheduled basis.

d. The possibility of decreasing growing stock should not be dismissed. Given the present and changing age structure of a maturing forest, prudent financial management might include a decrease in growing stock at some time in the future.

6 The Yale Forest System should rep-resent a source of financial flexibility for the School.

Requirements for this objective:

a. Cash flow options determined annually for subsequent five-year period. Options for both sales and costs for the immediate future should be presented to the Dean each year for the School's fiscal planning.

Management Goals and Objectives *continued*

b. Opportunities for investment should be determined each year along with expected rates of return. Money can be invested in forest management (such as stand tending and roads) that will result in a short-term deficit, but a long-term gain. These opportunities can be important to the School in years of budget surplus.

c. Efforts should be made to reduce financial risk of unusual events such as storms or disease. The product mix should include enough diversity that flexibility can be retained in times of disaster. The Director should also stay informed of information that would lead to better predictions of disasters. The overall financial exposure to different types of risk should be considered on a regular basis.

7 The School should make information available to the public regarding current activities on the Yale Forest System.

Requirements for this objective:

a. **Each year a brief written descrip-tion of current activities on the Yale-Myers Forest be prepared and made available to the School.** This report should be a short, accurate portrayal of all management activities on the Forest. The report should be given to the Dean.

b. **The Director should be available to answer more detailed public questions.** It is important that every effort be made to disseminate information and management transparency so that the public not assume that we have "hidden" operations or intentions.

c. **A conscious effort should be made to educate and engage the public and the professional field of forestry about research findings.** We will do this through seminars, published literature and newsletters, demonstration areas, and extension services in the form of management plans. The Quiet Corner Initiative is the leading entity that interfaces with the public on all outreach, education, and engagement activities.

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8 The Yale Forest System should be available to researchers and faculty outside of the School.

Requirements for this objective:

a. **All outside activities coordinated through the Director.** Activities by people not part of the faculty of this School should not interfere with our own activities.

b. **Copies of reports and papers generated from work on the Forest kept on file.** A direct benefit to the School by external research partnerships is access to resultant findings. In addition, published materials should provide credit to the Yale Forests for support of research.

c. **Costs (including administrative) to the School for the activities of out-siders should not exceed benefits.** This should be interpreted very lib-erally. Benefits include returns that are difficult to quantify such as information. Likewise costs should include factors such as restrictions placed on other activities in the Forest. Every effort should be made to collect direct and indirect costs from research projects on the Forest.

d. **Efforts should be made to make the opportunity of work on the Forest known to potential users.** It is important that the possibility of doing work on the Forests be generally known to others. General communication should be the result of professional relationships between our faculty and colleagues in their discipline.

Opposite page: **Annual crews of students in the Apprentice Forester Internship gain hands-on professional experience in sustainable forest management conducting timber stand inventories and implementing silvicultural prescriptions.**

Management Guidelines

continued

The Working Forest Criterion

The "working forest" criterion is a goal that has been adopted for all the Yale Forests. It also clearly identifies the School's forest policy of economic self-sufficiency as being a more realistic example of forest management to private forest landowners as compared to other university forests which are considerably subsidized or are primarily research forests. The "working forest" as defined promotes all operations that follow normal business and legal constraints for private, non-industrial forest owners who seek multiple benefits from their lands. Whenever possible the management of the forest aims to avoid employing special legal exemptions and unusual financial benefits given to universities or organizations of our type so that management experiences on our land are applicable to other ownerships. This means that the Yale Forests should serve as an example of sustainable and multiple-use management that is, in the long-term, financially independent of the School.

Costs incurred by the Yale Forests for land stewardship (town taxes; road, bridge, and gate maintenance; property boundaries; buildings; equipment purchase and maintenance; student intern salaries; forest manager stipends) are therefore no greater than the income generated by the Yale Forests. This policy stipulates long-term because unusual circumstances may occur, particularly involving short-lived market conditions for certain products that merit capturing income at periodic intervals. This means selling products and services when stumpage markets are high and deferring sales when prices are low, rather than generating income on a continuous basis irrespective of market conditions.

Inventory & Analysis

The foundation of all prescribed silviculture and active management on the Yale Forests is accurate inventory and analysis of forest vegetation, that provides both quantitative and qualitative data. Forest inventory and analysis efforts are carried out across the Yale Forests on a periodic, scheduled basis. Beginning in 1956, George Furnival established continual forest inventory plots (CFI) at both Yale-Myers and Toumey, which provide robust volume and yield of standing timber volume. Ever since, the CFI system has been updated on a ten-year rotation with the most recent analyses occurring in 2015 at Yale-Myers and in 2009 at Yale-Toumey.

In addition to the forest-wide CFI system, annual inventories are conducted by forest crews on each of the eight forest divisions at Yale-Myers. In effect, each division is inventoried on a seven-year rotation (Boston Hollow and Still River divisions are inventoried simultaneously). Forest crews also periodically inventory the other Northern forests: most recently Bowen and Crowell Forest in 2021, and Goss Woods and Crowell Ravine in 2012. Overall, the combined system of CFI rotations and annual inventories provides reliable and updated data to support sound management decisions and silvicultural prescriptions.

Yale-Myers Inventory Schedule

Division	Last Inventory	Next Inventory
Boston Hollow	2021	2028
Still River	2021	2028
Morse	2020	2027
Turkey Hill	2019	2026
Myers	2018	2025
Plusnin	2017	2024
Curtis	2016	2023
French	2015	2022

Management Guidelines

continued

Note: **the results from the CFI systems depicted here are derived from the total production forest area at the time of analysis: 5,828 acres (Myers) and 1,295 acres (Toumey).**

Yale Forests Stand Volume Estimates based on the Continuous Forest Inventory System (million board feet, mmbf)

Yale-Myers	Standing Volume 1984	Standing Volume 1993	Standing Volume 2004	Standing Volume 2015	Net Change
Oak	10.8	14.7	12.9	15.3	+2.4
Pine	6.5	9.3	12.0	11.6	-0.4
Hemlock	12.9	13.3	12.1	6.2	-5.9
Other hardwood	6.2	9.3	6.2	9.4	+3.2
TOTAL	36.3	46.4	43.2	42.5	-0.7

Yale-Toumey	Standing Volume 1985	Standing Volume 1999	Standing Volume 2009	Net Change
Oak	1.2	1.3	2.0	+.7
Pine	12.9	13.9	15.6	+1.7
Red pine	1.9	1.8	0.1	-1.7
Hemlock	3.7	4.1	3.2	-0.9
Other hardwood	1.0	1.1	.83	-.27
TOTAL	20.7	22.2	21.7	-0.5

Silvicultural Principles & Regulations

The guiding ecological principles for all silvicultural prescriptions at the Yale Forests seek to maintain the diverse suite of species compositions, structures, and site ecologies of New England mixed hardwood-confier forests. In addition to ecological principles, the Yale Forests also utilize a combination of quantitative regulations as well. Following the establishment of the CFI system in 1956, volume-based regulations were able to inform sustainable timber harvesting practices based off of the growth and yield estimates from these quantitative inventories. In 1994, coinciding with increased access to digital geospatial tools, area-based regulation was also adopted into the Yale Forests' management design.

Across the managed tenure of the Yale Forests, the trajectory of stand dynamics have allowed increased use of more variable and prescriptive silvicultural treatments over time. As the intensive land-uses of the early 20th century created more homogeneous, single-aged stands, early silvicultural prescriptions were constrained to only various types of thinning treatments and timber stand improvements. However, beginning in the 1990's, the then 70-90 year-old stands of the Yale Forests approached more mature age ranges. As a result, appropriate silvicultural prescriptions expanded to include regeneration methods like shelterwoods, seed-tree, group selection, femelschlag, and affiliated irregular systems. By utilizing a broader suite of both silvicultural thinning and regeneration systems, the Yale Forests of the 21st century began to shift to a more heterogeneous state: the patchwork of stands across the landscape now feature multi-aged and multi-structured forest compositions.

This increase in landscape-scale diversity across the Yale Forests has provided multiple benefits overall. From a biodiversity perspective, the creation of early successional stands following regeneration provides rich habitat for early seral wildlife. In particular, many migrant bird species rely on this early successional type for breeding and foraging habitat. Landscape-scale diversity of age class and structure also provides great economic utility relating to long-term resilience to timber market volatility.

First, retaining diverse species compositions across many different age classes gives the Yale Forests flexibility to capitalize on unpredictable, short-lived timber market conditions by harvesting timber products compatible with niche market demands.

Furthermore, maintaining species, age, and structural diversity of standing timber increases general resilience to large-scale disturbances. Abiotic disturbances like hurricanes and windstorms can selective destroy older, large - statured trees. However, early successional cohorts of trees that are already established can survive these types events and provide reliability to replenish standing timber volume that was lost. Biotic disturbance such as browse pressure from wildlife can selectively destroy younger age classes of trees, while preserving older, more mature individuals to function as seed sources and available timber volume. Additional biotic disturbance like native and non-native pests often induce selective mortality on specific tree species- meaning standing timber volume can be maintained during pandemic events by having diverse species compositions.

Volume, Growth, & Yield

The adoption of the CFI system has allowed the Yale Forests to incorporate volume-based control into its suite of active management guidelines. At the present moment, a maximum annual allowable cut for the Yale Forest system has been calculated at 500 thousand board feet (MBF), which has been lowered from the previous maximum of 1.0 million board feet. When calculated over ten-year averages, this maximum volume is rarely met. For the periods 1981-1990 and 1991-2000, the mean annual harvest volume across the whole Yale Forest system is calculated at 800 MBF and 600 MBF, respectively. For the period 2001-2010 the mean annual harvest volume is calculated at 507 MBF, and the estimated mean harvests volume for the period 2011 - 2020 is calculated at 386 MBF (pending ongoing harvests). Within its sustainable-use guidelines, the Yale Forests have also adopted area-based controls since 1994. For Yale-Myers, annual active management area is distributed between targets of 75-100 acres of thinning treatments, with targets of 25-50 acres distributed to multistage or single treatment regeneration methods. For Yale-Toumey and the other Northern forests, an area-based target of 25-50 acres of thinning and 25 acres of various regeneration systems are also utilized, parallel to Yale-Myers.

Volume, Growth, & Yield cont.

The observed results from the CFI analyses at Yale-Myers and Toumey track closely with paradigm shifts in the silviculture and management across the Yale Forests of the same time period. Beginning in the 1990's, CFI data show a net decrease in total merchantable growing stock volume. The most recent results show a net change of -0.7 MMBF at Myers and -0.5 MMBF at Toumey, over ten-year periods.

With the relatively novel emphasis on utilizing regeneration methods within the Yale Forests' suite of silvicultural prescriptions, stands receiving both preparatory or final regeneration treatments would enter new successional phases of stand initiation and early stem exclusion. Likewise, this change in successional phase would also reflect an overall reduction in standing merchantable volume due to the presence of a young, regenerating cohort of trees and the removal of more mature cohorts. In general, the current management objectives to create more heterogeneity across the landscape manifests in observed measurements from the Yale Forests' CFI data.

To note, decreases in merchantable volume of Eastern Hemlock also contribute to overall decreases in merchantable volume shown in the CFI analyses- this trend can largely be explained by defoliation and mortality by the Woolly Adelgid which continues to persist as a driver of Eastern Hemlock mortality within the Northeast region.

Land Use	Yale Myers Forest		Yale Toumey Forest	
	Acres	Percent	Acres	Percent
Production Forest	5,808	74%	1,521	79%
Plantations	25	<1%	62	3%
Open areas	22	<1%	2	<1%
Research areas	54	1%	21	1%
Early successional reserves	175	2%	0	0%
Future late successional reserves	566	7%	77	4%
Late successional reserves	141	2%	0	0%
Old fields	75	<1%	19	1%
Water bodies	112	1%	0	0%
Wetlands	862	11%	228	12%
Total	7,840		1,930	

The land use zones at the Yale-Myers Forest and the Yale-Toumey Forest are estimated based on current geographic information systems data, September 2021.

Area- and volume-based timber harvest targets for Yale-Myers forest within a 7-year rotation of divisions. Prior to the adoption of this system in 1994, active management of stands were scattered across the property, depending on the needs of individual stands and the interests of the forest director, manager, and crews.

Area (acres)	**Yale-Myers Silviculture**	**Volume** (MBF)
75–100	Low, crown and free form thinnings, crop tree management, timber stand improvement	100-200
25	Preparatory treatment of a regeneration system	150
25	Final treatment of regeneration systems; initial treatment of a 1-treatment system such as clearcuts or 1-cut shelterwoods.	150

Yale-Toumey forest follows a parallel protocol of area- and volume-based targets to Yale-Myers, and includes harvests on Goss Woods and Crowell forest on the same rotation.

Area (acres)	**Yale-Toumey Silviculture**	**Volume** (MBF)
25–50	Low, crown and free-form thinnings, crop tree management, timber stand improvement	100-150
25	Preparatory and or final treatments of regeneration systems.	50-100

Management Guidelines

continued

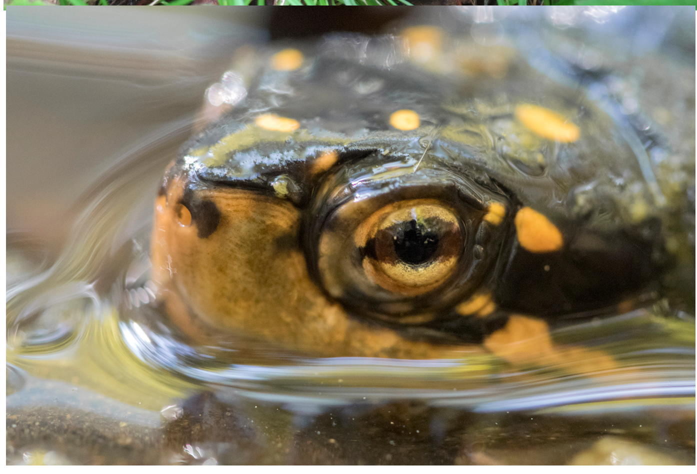
Biodiversity & Protected Areas Assessments

Pairing with its robust timber stand inventories, the Yale Forests also utilizes periodic sampling for biodiversity, ecologically sensitive areas, and forest health indicators. Four-hundred and twenty forest health and understory diversity plots were established in 1978 and are remeasured for floristic diversity, woody material, forest structure, and tree species regeneration at ten-year intervals. These plots taken together assess current stand level conditions of groundstory herbaceous diversity, regeneration, vertical structure, and woody material in relation to current silvicultural prescriptions and management regimes.

In addition to its internal sampling regimes, the Yale Forests incorporates external verification of broad ecosystem metrics. Beginning in 2013, the state of Connecticut's Department of Energy and Environmental Protection conducted an assessment of Yale-Myers' High Conservation Value Forests (HCVF) which assess a suite of metrics deemed critically important in supporting ecological diversity, cultural resources, and community engagement. This external assessment validates Yale-Myers forest vegetation and biodiversity periodic inventory efforts. The HCVF inventory occurs in a ten-year schedule, with the next update expected in 2023.

The range of ecosystem-wide sampling efforts by the Yale Forests have helped guide management decisions in considering regional differences in deer browse impact across the forest, and susceptibility to regeneration failure related to forest light conditions, seed source, and soil type. Groundstory floristic diversity measures have been used to assess and strategically plan for a special areas network within the Yale Forests. Forest structure and composition and woody debris measures are used to gauge wildlife (bird, amphibian, mammal) habitat suitability.

During the last ten years, the wetlands of the forest have been assessed on the ground and using remotely sensed information. Each year amphibians have been quantified and related to local conditions including factors such as hydroperiod, wetland area, water chemistry, and forest cover. Changes in wetland cover has also been documented as a result of the reestablishment of the beaver in the mid 20th century. The seral sequence set up by beaver activities, as well as the subsequent decay of their work, results in a highly dynamic mosaic of wetland environments that suit different species at different points in time. Taken together these measures have been used to quantitatively support landscape-level integration of sensitive and special areas (riparian systems and wetlands; biologically unique areas; older forest components; early seral habitat; and recreational viewsheds) into a working forest landscape.



Previous page: **Evidence of ground-nesting Veery in seral habitat; a painted turtle which is common to many water-bodies across at the Yale Forests**

RESEARCH

Background Information

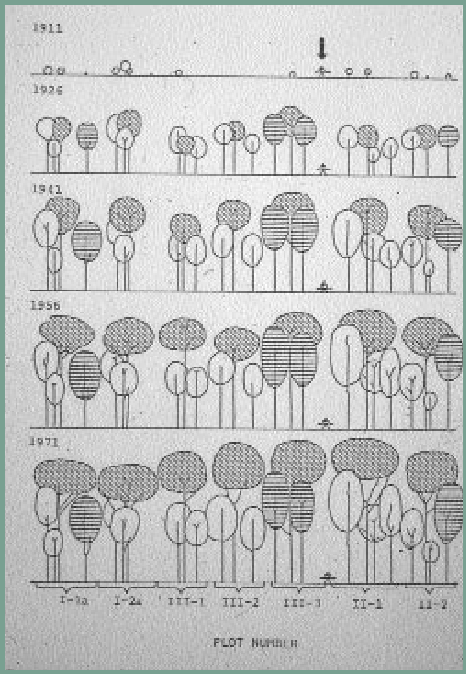
THE EARLY YEARS

Over the years research on the Yale Forests has changed the practice of forestry in North America. The School's first research efforts started at the Yale-Toumey Forest and began investigating plant interactions with light and soil moisture with his famous trenched plots from the 1920s to 1940s (Yale Bulletin 30). This kind of work culminated in a series of forest ecology and silviculture textbooks that were the first of their kind in North America (Hawley 1921, 1929, 1937; Toumey 1928; Toumey & Korstian 1937; Lutz & Chandler 1946), in large part based on the work done at Yale-Toumey, and later at Yale-Myers. Unlike Yale-Toumey, there was little ongoing research at Yale-Myers when the forest was donated as a series of parcels from 1926–1931. There were, however, a number of permanent plots that were set up by the USDA Forest Service in the 1930s to monitor forest growth and health impacts from the chestnut blight and gypsy moth.

THE BIRTH OF THE STAND DYNAMICS PARADIGM AND REGENERATION ECOLOGY

The first complete description of land-use history, research, and management at Yale-Myers was published by Walter H. Meyer and Basil Plusnin in 1945 (Yale Bulletin No. 55). During World War II and the post-war era (1945-1955) research efforts at both forests were considerably curtailed. In 1954, David Smith was appointed Director of the Yale Forests and began initating more research. Some of the first forest gap dynamics and controlled long-term regeneration studies in North America (1966-1968) were started at this time. These studies continue today at both Yale-Toumey and at the Yale affiliated Great Mountain Forest as permanent plots (Smith & Ashton 1993; Liptzin & Ashton 1999, Woodbury, Glogower, Duguid, Frey, and Ashton 2021). Another focus that developed in the 1960s was the establishment of permanent plots in Red and White Pine plantations to evaluate growth and competition of differently spaced trees. This was at Yale-Toumey, with some at Yale-Myers. This work eventually resulted in a better understanding of crown growth allocation relationships that changed the way foresters consider controlling growing space (Seymour & Smith 1987; Oliver & Larson 1995).

Since the middle 1970's, research initiatives have been consistently increasing at Yale-Myers Forest and remained somewhat steady at Yale-Toumey. This is in part related to time commitment and distasfsdfsadfnce away from New Haven, but also due to the considerably richer land-use history and floristic complexity at Yale-Myers.



Oliver's stand development model for even-aged mixed hardwood forest of southern New England.

Opposite page: **Students gain experience from a variety of field research opportunities including trophic food-web cascades in old fields and carbon cycling dynamics of course woody material, pictured here**


Yale Forest

Background Information *continued*

The landscape diversity at Yale-Myers has provided more opportunities to explore a number of interesting social, biological, and physical questions. The first such research theme that developed at Yale-Myers was the documentation of patterns in stand development. Initial studies were done on mesic mixed-oak stands by Oliver (1978).

It was also at this time that William Burch and his students were documenting patterns in land-use change. Later, related studies explored similar themes with other tree mixtures (Kelty 1986) and from different perspectives in scale and time (Kittredge 1988). The Oliver-Larson forest stand dynamics paradigm is now a widely accepted model for many in North America (Smith 1986; Oliver & Larson 1995; Toman & Ashton 1996; Berlyn & Ashton 1996; Ashton & Peters 1999), and it was conceived and continues to be developed at the Yale Forests.

Since the mid-1980s forest ecology research has blossomed at the Yale Forests. Work has been renewed on forest gap dynamics with long-term studies that investigate patterns in interaction between soil moisture, soil nutrition, and radiation and their effects on regeneration at microsite and landscape scales (Ashton 1992; Kittredge & Ashton 1990, 1995; Ashton & Berlyn 1994; Ashton & Larson 1995; Ashton & Larson 1996; Ashton et al. 1998; Ashton et al. 1999, Martin et al. 2021); effects of fire on regeneration (Moser et al. 1995; Ducey et al. 1995); and several studies on factors that arrest the successional dynamic in forest uplands (fernlands, deer and forest understory interactions - Kittredge et al., 1992; Kittredge et al. 1995).

Yale-Myers and other Yale Forests have also become important sites for latitudinal gradient analysis of ecosystems along the Eastern Seaboard. Comparisons between Yale-Myers and other long-term research sites have made important advances in our understanding of soil ecology, climate adaptation in insects, trace gases in wood, and the primary drivers of decomposition on the forest floor (King et al. 2013, Bradford et al. 2014, Covey et al. 2016, Rosenblatt et al. 2016). In addition, a Global Earth Observatory plot was recently established and will contribute valuable data to a network of 67 sites across six continents.

Management at the Yale Forests is often intentionally paired with research, which creates income and advances practical knowledge for foresters and landowners in the Northeast. For example, the introduction of regeneration systems into Yale-Myers Forests in the 1990s has allowed for pioneering research on the long-term effects of forest management. Shelterwood systems have been continuously studied to evaluate their impacts on tree regeneration, breeding bird diversity, amphibians, and many other variables (Duguid et al. 2016, Wikle et al. 2019, Mossman et al. 2019, Hanle et al. 2020).

AQUATIC COMMUNITIES AND OLD-FIELD TROPHIC FOODWEBS

Research at Yale-Myers extends beyond the forested landscape. Faculty and students are exploring trophic interactions among plants and herbivores and the role of biodiversity on ecosystem function at Yale-Myers. Most of this work centers on two systems: old-fields and wetlands. Some abandoned farm fields at Yale-Myers have been examining the dynamics of ecological food chains and food webs comprised of grassland plants and insects and herbivore behavioral response to predators (Schmitz 2000, 1998, 1997, 1994; Schmitz et al. 2000, 1997; Abrams & Schmitz 1999; Uriarte & Schmitz 1988; Beckerman et al. 1997; Rothley et al. 1997). Work in wetlands and other aquatic habitats is focused on understanding pattern in species distribution and community composition of amphibians with special application to habitat conservation and management. Skelly et al. (2005) explored the role of forest vegetation as a determinant of amphibian species composition and abundance in small ponds. Their research resulted in later studies that directly tested the effect of forest management near vernal pools on amphibian diversity (Skelly et al. 2014). Additional studies have focused on how clearing by beaver and humans and vegetational succession act to shape the phenotypes of local amphibian populations (Wellborn et al. 1996; Kareiva et al. 1997; Skelly & Friedenburg 2000). Yale-Myers has also been an important site in studying how urbanization gradients influence disease and sex regulation in amphibian populations (Kiesecker et al. 1999, Kiesecker & Skelly 2000).

The Yale Forests are a unique place where forest management, applied research, and basic ecological science co-exist and complement each other. The Yale Forests' commitment to balancing these activities has resulted in groundbreaking research over the past century, and will continue to advance our knowledge of the local and global environment into the next.

Visit forests.yale.edu/research for current information on research at the Yale Forests.

Education and Outreach

The Yale Forests provide a wide variety of ecosystems, ranging from pine plantations to wetlands, which can assist faculty in teaching several courses by using the forests as an outdoor classroom, as well as fully equipped research facilities. Many faculty have taken advantage of this opportunity and bring their students to the Yale Forests for field trips. In addition to this, the Yale-Myers Forest has the capacity for large groups to stay overnight on extended field trips or during the Ecosystem Measurement module during student orientations.

OBJECTIVES

The education and outreach objectives of the Yale Forests are currently met in 11 ways: 1) class field trips; 2) exercises and workshops; 3) field modules; 4) doctoral student research; master's student projects; research interns; 5) Apprentice Forester internship program; 6) forest administration; 7) demonstration areas and outside group tours for professionals and the public; 8) summer research seminars; 9) dissemination of published research (Yale Forest Working Papers and peer reviewed contributions); 10) Yale Forests Newsletter; and 11) digital content. The stated goal of the forest is to provide educational opportunities and in that way it is important to have a direct faculty relationship to the management of the Yale Forests.

As outlined in the Management Guidelines for the Yale-Myers Forest, one of the three primary objectives that the forest should provide is a hands-on, working (managed) forest laboratory for teaching.

CURRENT USE

1 Class Field Trips

The Yale Forests have always been used outdoor classrooms and venues for experiential learning. Yale-Myers Forest has been the property most frequently used due to its proximity to campus as compared to the Vermont and New Hampshire forests, and because of excellent facilities for extended stays.

2 Exercises and Workshops

Several forest operation workshops are held at Yale-Myers Forest. These typically comprise 15 students and cover topics such fire ecology and prescribed burn-ing; harvesting operations; wet-lands delineation and soil surveys.

3 Field Modules

One of the most intensive class uses of the Yale-Myers Forest is 'Mods' during the summer as part of new student orientation to the School. Yale-Myers Forest is used each summer for the Ecosystem Measurement Module to instruct the incoming first year Masters students on the basics of measurement in the field. The forest serves as a useful field site for instruction, but it is also an important venue for community building. For most of our students it is the first (and maybe the last) time that they will be on a managed forest.

Opposite page: **Yale-Myers Forest is a beloved destination for the annual 'Mods' to orient incoming Yale School of the Environment students on the foundations of land management and ecosystem measurement**

Education and Outreach *continued*

4 Projects for Masters Students, Research Interns, and Doctoral Research

The Yale Forests are used by students for various courses and special projects. There are both official dissertation and master's projects as well as projects within the context of different courses such as economics and management. As the School has grown, the demands for forested land for these projects has increased.

5 Apprentice Forester Internship Program

The Apprentice Forester Internship program is the most intensive educational use of our forests. Crews of intern foresters do all phases of forest management work including forest inventory, stand exams, mapping and photographic interpretation, timber sale layout, marking of silvicultural prescriptions, contract compliance and supervision, road drainage and maintenance and boundary marking.

6 Forest Administration

The administration of the forest is conducted through by the Forest Management fellow and QCI fellow, who are recent Masters graduates with prior forest internship experience who work and learn through the administration of the forest. The fellows work under the supervision of the Directors of Research, and Operations and Management. The policy of paying students, rather than special staff or consultants, to manage the Forests is a unique solution of combining management with educational training.

7 Tours and Demonstration Areas

Every year group meetings, workshops and tours are conducted at the Yale Forest by students and faculty of the School. Common events are those sponsored by the Society of American Foresters, Connecticut Forest and Park Association, Connecticut Forest Extension Service, field visits by students from other universities, and field trips sponsored by USDA Forest Service. There are currently five unique demonstration areas that serve to illustrate our understanding of forest management to groups of professionals, students and the public.

8 Summer Public Events

Each summer we host an annual Research Seminar Series at Yale-Myers Forest open to the general public. The seminar speakers offer lectures intended to demonstrate the nature of our research and its management implications.

9 Dissemination of Published Research

Yale Forest Working Papers are made available through the Global Institute for Sustainable Forest Management. Peer-reviewed literature that comprises results of research at the Yale Forests is compiled into an annual booklet for distribution to professional and public organizations in southern New England.

10 Yale Forests Newsletter

An annual newsletter is published at the start of the calendar year summarizing the last year's events and the plans for the future year. It is distributed to public subscribers in the region, school forest alumni, and the Yale School of the Environment faculty, students and administration.

PUBLIC RELATIONS, REGULATIONS AND POLICIES

Hunting (by permit) is administered by the Connecticut Department of Energy & Environmental Protection. A 12-mile portion of the Nipmuck Trail, maintained by the Connecticut Forest and Park Association, traverses the Forest from south to north. This hiking trail is the only area officially designated as open to the general public for recreational use.

11 Digital Content

The Yale Forests' Web Page, Instragram account, and Facebook page serve to educate students and other about the management, research, education, and more across the Yale Forests.

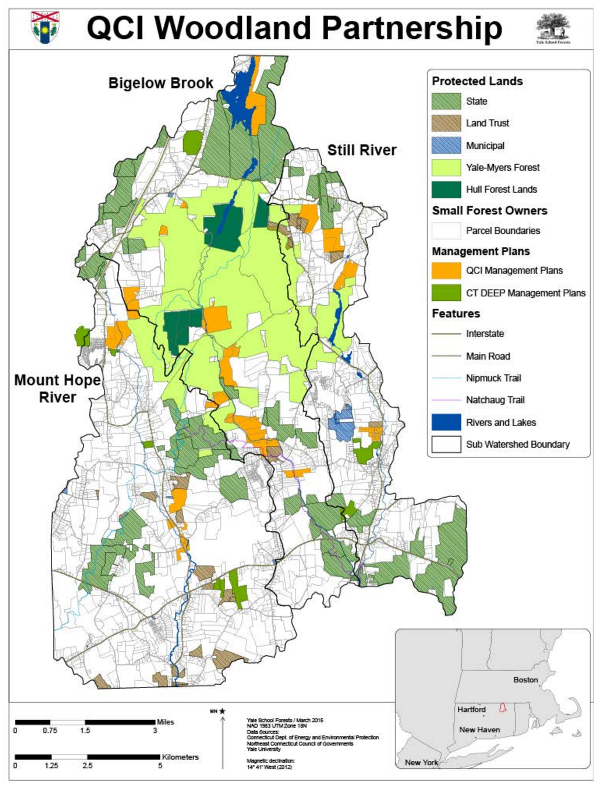
Please find these resources at: forests.yale.edu, @yaleforestry, and @yaleschoolforests.

Guests at Yale-Myers Forest enjoy wildlife viewing from one active management demonstration areas depicting seral habitat

Quiet Corner Initiative

The Quiet Corner Initiative (QCI) is the outreach and engagement arm of the Yale Forests. It was created in 2010 to improve the capacity for sustainable land management and stewardship in northeastern Connecticut. QCI brings together Yale faculty and students, Quiet Corner community members, the local forest products industry, and conservation organizations to work together on issues of land management, conservation, and stewardship. QCI's programming focuses on three main topic areas: the promotion of sound forestland management, the development of renewable energy, and the expansion of small-scale agriculture.

QCI focuses primarily on the towns of Ashford, Eastford, Union, and Woodstock in Connecticut's Quiet Corner. Using Yale-Myers Forest as an anchor, QCI aims to ensure that the Quiet Corner can maintain healthy forest ecosystems and sustainable rural livelihoods into the future. Through clinical projects, research, and public events, QCI supports local forest and farm owners in learning, sharing, and realizing their goals – both for their land and for the broader region.



Top right: Neighbors of the Yale Forests participate in a shiitake inoculation workshop. Bottom right: Students from Yale have written management plans for 70 different local community members around Yale-Myers since the program's inception in 2010. Bottom left: Students and landowners come together for the 2019 Harvest Festival, including apple pressing and the famous crosscut saw competition.

Forest Facilities

With the acquisition of Yale-Toumey and Yale-Myers Forests, the School also acquired a house at Yale-Toumey, and four farmhouses with several barns at Yale-Myers. In the 1930's and 40's a sawmill, a shed and three camp buildings were erected near the Morse house at Yale-Myers and a cabin constructed near the house at Yale-Toumey. The camp buildings and the Morse house have historically been the center of activities since the commencement of field camp in 1931 at the Yale-Myers Forest. In 2016, the then camp facilities tragically burned down in a fire, destroying everything except the historic stone fireplace. The following year in 2017, the camp cabins, kitchen, and bathroom facilities were reconstructed in the similar style as the historic camp, even using the historic stone hearth as the center piece for the kitchen and dining hall.

Alongside the reconstruction of the camp facilities, a state of the art research building was also constructed along the grounds of the historic French family research area. This research facility is equipped with a full wet lab with modular counter top bench space, an herbarium, a herpetarium for amphibian research experiments, a specialized soil lab for storage and processing, and a technology supported seminar room for teaching and webinars. Outdoor areas surrounding the new lab include forests, meadows and wildflower gardens, ponds, and raised beds for common gardens and other experimental treatments. Fixed equipment inside the lab includes microscopes, drying ovens, and incubators.

The historic camp dining facility (left) and the reconstructed facility in 2017 (right). Note the survival of the stone fireplace

Opposite page: Newly constructed state of the art research lab

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