

**Randolph Community Forest
Third Stewardship Plan - 2023 to 2033
+/-11,247 Acres**



**Prepared for:
The Randolph Forest Commission Town of Randolph
Randolph, NH December 2023**

Prepared By:

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January 23, 2025

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Dear Mr. DeGruttola,

The Division of Forests and Lands has reviewed and approved the 2023-2033 Randolph Community Forest (aka Pond of Safety) Multi Resource Management Plan (Forest Stewardship Management Plan). The Plan is approved subject to and subservient to the terms of the Conservation Easement. The plan is approved for a 10-year period expiring Dec 31st, 2032. As stated in the conservation easement any amendments to or revisions of the Plan must be submitted to this office for approval.

If you have any questions, please contact Mark Faulkenberry via email Mark.s.faulkenberry@dn-cr.nh.gov

Sincerely,

Patrick D. Hackley

Patrick D. Hackley, Director
NH Division of Forests and Lands

LANDOWNER APPROVAL:

Signature

Date

This plan has been approved by David DeGruttola, New Hampshire Licensed Forester

David DeGruttola

Signature



331

Forester License Number

January 23, 2025

Date

This plan has met the approval of Patrick D. Hackley, Director, New Hampshire Division of Forest, and Lands.

Patrick D. Hackley, Director
New Hampshire Department of Natural and Cultural Resources
Division of Forest and Lands

Date

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INTRODUCTION TO THE THIRD STEWARDSHIP PLAN

2023 -2033

The Third Stewardship plan is the blueprint for the management of the Randolph Community Forest for the next decade. Writing it was an arduous task, involving not just putting pen to paper, but the collection of data and then, based on that data and the wisdom of experience, the drawing of conclusions about the potential utility of various courses of action. The work was done by our Forester, David DeGruttola, and his colleagues at LandVest, who went the extra mile to meet the demands of our schedule. They deserve the gratitude of the entire community.

The main goals for the management of the Forest were first enunciated in the initial Stewardship Plan in 2003. They reflected the views of many residents of Randolph and neighboring communities. Some of those views were voiced during a series of public hearings held jointly by the Randolph and Jefferson Planning Boards, prior to the creation of the Forest, when participants were asked what they would like to see included in a conservation easement governing the future use of the property. Other views emerged from a later session held in anticipation of the preparation of the first stewardship plan to elicit opinions about goals and purposes.

The essential elements of the original statement of goals were preserved in the second plan and, once again, in this plan. Where amendments have been made, they have reflected new opportunities which have arisen for the use of the land and in no case have they substantially altered the original vision with which the Forest was born.

Towards the end of the Second Stewardship Plan period, the Randolph Forest Commission suffered a devastating loss with the death of John Scarinza, who had been its chairperson from its inception. His leadership influenced many of the choices of the first two plans, and are part of this one, as well. Some of his contributions are, indeed, indelible.

The loss of its chairperson naturally entailed a reorganization effort within the Commission which caused a brief hiatus in some on-going projects. That effort is now complete, and its unanimous endorsement of this Third Stewardship Plan indicates that the Commission is once again focused on the future.

The Randolph Planning Board oversees the policies governing the Community Forest and approves the budget, while the Forest Commission is responsible for its management. Meetings of both organizations are held once a month in the Randolph Town Hall. They are public meetings and members will welcome opinions and suggestions of all those who use or are interested in the Forest, whether residents of Randolph or not. All major decisions relating to the Forest are taken by the Planning Board at specially notified public hearings, where community comments are encouraged. Finally, all the members of the Forest Commission welcome ideas and suggestions made to them directly. The website (randolphforest.org) provides contact information.

Like the White Mountain National Forest, to which it abuts, the Community Forest is a “land of many uses,” and we hope that all those who take advantage of those uses will find what they seek and enjoy their experience.

Thank you.

The Randolph Forest Commission

PURPOSE

The Third Stewardship Plan has the following purposes:

To continue to implement the provisions of the Conservation Easement granted to the State of New Hampshire by the Trust for Public Land in 2001 prior to its transfer to the Town of Randolph of the land, which is subject to those provisions;

To describe the properties that have been added to the Forest since its inception in 2001 and the opportunities they present;

To document the condition of the natural and human-caused resources in the Forest as of 2023, with descriptions of changes which have occurred since its creation in 2001;

To review the activities conducted under the First and Second Stewardship Plans and to build upon them;

To develop an action plan which outlines proposals for managing timber, wildlife, recreation, and other natural resources, for creating and maintaining needed infrastructure, and for promoting research and educational activities;

To document the existing partnership between the Town of Randolph and the United States Forest Service for the joint management of certain roads and attendant facilities within the Forest and adjacent areas of the White Mountain National Forest and suggest proposals for strengthening it;

To maintain and document the Town's relationship with the New Hampshire Division of Forests and Lands as provided for in the governing conservation easement, and with NH Fish & Game and other relevant state agencies; and

To ensure that the Town is prepared to take advantage of unforeseen opportunities for improving the health of the Forest or the use of its resources.

This is the third forest stewardship plan for the Randolph Community Forest. The plan will be revised every ten years, with an updated action plan for the next ten-year management period 2023 - 2033. This plan should reference and build upon the second stewardship plan and will list accomplishments over the past 10 years as well as list actions and opportunities on the Forest over the next 10-years.

FOREST STEWARDSHIP GOALS

The following management goals represent a continuation, alteration, expansion, or modification of the goals enunciated in the First and Second Stewardship Plans in the light of twenty years of experience. New goals have been added to take advantage of new opportunities.

FORESTRY PRACTICES

A Forest composed largely of high quality sawtimber, and a more diverse hardwood stand, whenever suitable soils and other ecological conditions exist, remains a long-term goal of the Town, a goal which may take more than seven decades to fully achieve. An exception is the Stag Hollow Brook valley, which was historically populated with softwoods providing valuable wildlife habitat. Here, the goal is to return the area to its original condition.

The period of the First Stewardship Plan saw the adoption of a strategy to achieve these goals. A series of beginning steps were taken, including some small clear-cuts for the purpose of diversifying tree species, and creating stands of differing age classes to regain the natural character of the Forest. The basic elements of this strategy were continued into the Second Plan period with a somewhat more ambitious program of clear-cuts and diversification.

During the Second Stewardship Plan period, too, the Town was instrumental in bringing to fruition a methodology known as “Dirt-to-Trees-to-Wildlife” (DTW,) a management tool to assist in landowner decisions relating to the silvicultural composition of property. To the extent possible, this tool will be utilized in achieving the goals stated above.

It remains a goal of the Town that all timber harvests and operations observe the recommendations of “*Good Forestry in the Granite State,*” and later descriptions of preferred forest management practices. Harvest area layout will take into consideration aesthetics and appropriate techniques to minimize visual impacts will be implemented.

The Randolph Planning Board, as the supervisory body in the Town’s Forest management structure, held a notified public hearing prior to approving each of the proposals for harvesting projects, referred to it by the Randolph Forest Commission. Public comments were welcomed. This is a requirement of the Town’s Forest Ordinance, and it will continue to be observed throughout the period of the Second Stewardship plan.

INCOME CONSIDERATIONS

From its inception, it has been a long-term goal of the Town to manage the Community Forest sustainably while earning profits which make it possible to provide the Town taxpayers,

at no cost to them, a facility which offers various forms of outdoor recreation, protects, and enhances wildlife habitat and serves as a classroom of the natural sciences.

Revenues are earned from timber harvesting, from the maple tap lease and from grants and private donations. The first priority for the use of those revenues is to the infrastructure needed to manage the Forest. Then, the funds are used for such purposes as the protection and improvement of the Community Forest's biodiversity and adaptation to our changing environment; the enhancement of traditional outdoor recreational opportunities; the encouragement and support of research and educational activities related to the flora and fauna existing within the Forest; and the conservation of ecologically and culturally important tracts of land within the Forest.

During the First and Second Plan periods the returns received from timber harvests, the maple tap lease, and other sources have proven sufficient to cover the costs of creating wildlife openings, of maintaining road and boundary lines, of mowing and brushing, wildlife openings and fields, of trail construction and maintenance, of installing culverts and bridges and of making PILT payments on a regular basis to the Towns of Jefferson and Randolph. It is anticipated that these will be continuing costs during the period of the Third Stewardship Plan.

AESTHETICS

Long years ago, the commercial owners of the land which was to become the Randolph Community Forest received many a complaint from hikers on the slopes of Mounts Madison and Adams who looking down from above on unsightly clear cuts which spoiled the otherwise pristine landscape.

The Town has taken this lesson to heart. During the First Plan period, it used harvesting techniques which minimize the visual impact of timbering activities ("light harvesting") in those areas of the Community Forest which are easily seen from other locations, and this policy has been continued through the Second Plan period. All clearings created by timbering operations or for the purpose of providing wildlife habitat are irregular in shape and made up of small openings so as to present minimal visual evidence of disturbance. All clearings, save for the wildlife openings, grow in within a year or two and are virtually indistinguishable from the surrounding forest.

That said, it needs to be recognized that it is not possible to screen every human-caused clearing. It is a goal of the Town to utilize the very best and latest forestry practices and scientific research, for the well-being of the forest ecosystem. Among other steps, this necessitates the long-term monitoring of wildlife openings, some of which may be large in size and obvious to the viewer.

RECREATION

The overriding goal of the Town regarding recreation is to facilitate the use of the Forest by the public for low impact forms of summer and winter recreation. Early in the period of the First Stewardship Plan, the Town designated the Randolph Mountain Club as the activity manager for hiking trails and the Methna Snowmobile Club of Jefferson for snowmobile trails. The designated clubs are responsible for building and maintaining the trail systems on the Forest for their respective sports and both have proven to be worthy partners to the Forest Commission

When the Forest Commission determines that new trails are needed (as in the case of the Crystal Mine Trail and the Rollo Falls Trail, inaugurated during the Second Plan period) it contracts with the appropriate activity manager to do the work and underwrites the cost. Proposals for new trails will always be carefully considered so long as they can be built and maintained utilizing Best Management practices (BMP) to protect soils from erosion, brooks and streams from degradation and undue disturbance of the habitats of plants and animals. In addition to trails, the Town encourages the creation and maintenance of viewing spots or outlooks to enhance the hiking experience.

Proposals for new types of low impact recreation are also carefully considered. During the Second Plan period the Town accepted a suggestion that glade skiing be introduced in the bowl above the parking lot on Randolph Hill. The Granite Backcountry Alliance (GBA) was designated as the activity manager and the area has become remarkably busy during winter weekends.

All work in the Forest must always be consistent with the Conservation Easement and Snowmobile Agreement governing the use of the Community Forest. All activity managers have been careful to abide by the restrictions contained in those agreements.

ECOLOGY

A goal of the Town, from the inception of the Community Forest, has been to protect and enhance habitats for plants and animals. To this end, forest type and age composition have been managed and will continue to be managed, to increase the amount of aspen and spruce/fir softwoods to provide important wildlife habitat. This initiative is especially important along the Stag Hollow Brook where deer yards once proliferated, but where hardwoods replaced softwoods under the commercial growing practices of previous owners.

Also, to this end, both the First and Second Plan periods have seen the introduction of a number of permanent wildlife openings to accommodate those birds and animals which thrive in woodland glades or on their edges. A general standard for a healthy forest is to have 3% to 4% of the land area open for their use, which means that ideally the Community Forest should

contain some 300 to 400 acres of open space. At present, the Forest is woefully short of meeting that ideal. But work is being done.

During the First Plan period, several permanent wildlife openings were created and more have been added during the Second Plan period. Making and maintaining these openings is not easy or inexpensive. Trees must be cut, rocks and roots removed, and the land smoothed so that the area can be mowed or brushed once a year. Nevertheless, this effort is expected to continue through the period of the Third Stewardship Plan.

It is also a goal of the Town to encourage plant and animal diversity and to ensure that water resources, streams and wetlands are protected by the utilization of the Best Management Practices specified in the Conservation Easement.

RIVER CORRIDORS

Wetlands have a particular importance in the ecological cycle. A natural means of purifying or preserving the purity of water, they provide a unique habitat for a wide range of fish, birds, reptiles, animals, and plants. Two rivers flow through Randolph, each with associated wetlands. Both rise near the watershed at Bowman, from whence the Israel's River flows west to the Connecticut, while the Moose River heads east to the Androscoggin.

It is a goal of the Town to protect these river corridors from undesirable development and implement measures to preserve and enhance water quality, a goal which can be accomplished in a couple of ways: Riparian lands can be purchased outright and added to the Community Forest, or the Town can acquire conservation easements over them affording permanent protection. Conservation easements held by the Town are monitored by the Forest Commission with its costs paid for out of the Forest Revolving Fund.

During the first two Plan periods there has been a marked measure of success towards achieving this goal. To the east, the donations of the Carpenter land, Rollo Falls, the Meiklejohn purchase, and the Potter tract have all been added to the Community Forest and will enable the Town to protect the Moose River. To the west, the Farrar Farm is now part of the Community Forest and provides similar protection to the Israel's River. Promised donations of conservation easements from the Hudson and Maddox families will extend the protection along the Israel's River valley. The Third Stewardship Plan period is expected to see continued efforts at protecting the two river corridors.

THE CRYSTAL MINE AND OTHER SPECIAL PLACES

One unique feature of the Randolph Community Forest is the existence within it of an old quartz crystal mine. The mine was used by the General Electric Company during the early years of the Second World War to produce crystals used for radio equipment. After a technological

breakthrough rendered that equipment obsolete, the mine was abandoned and has been closed to commercial use ever since. It remains, however, a source of crystals for hobby gem collectors, and the conservation easement specifically permits the collection of small samples of quartz, extracted with hand tools only, for personal use.

During the final years of the First Plan period, the mine was plundered by an unscrupulous collector who used mechanical equipment to remove large pieces of quartz. In response, the Town took two steps to protect it from future vandalism. It adopted a resolution, at Town Meeting, which designates the crystal mine as a “natural area” under the protection of New Hampshire RSA 634:2(VI). This means that a violation can now be prosecuted as a class A misdemeanor under state law. The second step was to build a new Crystal Mine Trail leading to the mine site from the Farrar Farm. This should have the effect of making the site more easily available to the public and lessen the danger that further damage could be conducted secretly over an extended time period.

Another special place was added to the Community Forest during the Second Plan period when the Potter Tract became part of it, because the Tract contains a paleo Indian site of great archaeological significance. The Town is advised that the best protection that can be offered to this site is to avoid identifying its exact location.

It remains a goal of the Town to continue to protect these and any other special places which may be identified in future.

ROADS AND OTHER INFRASTRUCTURE

When the Town took possession of the land which became the Community Forest, it inherited 26.6 miles of logging roads, composed of three road networks, the Pond of Safety Road in the west, the Bowman Road central, and the Jimtown Road in the east. It is a continuing goal of the Town that the main arteries of both networks are kept in usable shape. Side roads are divided into classifications: those which might be needed for emergency access; and those which might in future be useful for timbering operations or other commercial activities. The goal is to maintain the former in a condition which makes access feasible, and to close the latter, but ensure that the roadbeds remain in such condition that they can be reopened as needed.

In the west, it remains a goal of the Town to maintain the Pond of Safety Road in a condition that enables it to be used by high-clearance vehicles to access the Pond of Safety and the region around it. To this end, the Town has entered into an enduring contractual agreement with the U. S. Forest Service for the joint management of it and several other roads which provide access to the Kilkenny section of the White Mountain National Forest (WMNF) via the Community Forest.

Portions of the Pond of Safety Road are part of the state snowmobile trail system. To accommodate snowmobilers, the Town constructed a parking lot at its western end during the First Plan period. During the second Plan period, a similar parking lot was established at the top of Randolph Hill Road adjacent to the Jimtown Road, primarily for summer hikers to access the RMC trails to Mounts Crescent and Randolph. This lot is used for the glade skiing program in winter.

During both Plan periods, a number of culverts were replaced in both road networks, but especially along the Pond of Safety Road. The U.S. Forest Service donated a unused Bailey bridge which was installed at a location along the Road where single culverts would not suffice. During the last years of the Second Plan, the Town, with a grant from NRCS has contracted for the construction of four new bridges which are to be installed along the Pond of Safety Road. They are designed to facilitate the movement of aquatic life along the streams which flow under the Road.

EDUCATION

It remains a goal of the Town to use the Forest to educate residents and other members of the public about the natural cycles of forest life and about the positive role played by sustainable timber management. During the period of the first Plan, the Forest Commission introduced the practice of celebrating an annual Forest Day, which couples a report about the previous year's activities with an educational tour into the Forest. These Forest tours have been well received and are generally well attended.

It also remains a goal of the Town to use and encourage the use of the Forest as a laboratory where experiments can be carried out relating to sustainable forest management, wildlife habitat enhancement, water quality and soils protection and other relevant subjects. The First Plan period saw the creation of fifteen permanent transects on the Community Forest and an adjacent portion of the WMNF. These transects provide the infrastructure for future research projects.

MAPLE TAPPING

During the Second Plan period, the Town was presented with the opportunity to develop another source of income from the Forest, which did not contravene the terms of the conservation easement. A large maple "sugarbush" was identified in the western end of the Forest, on a south sloping area adjacent to Route 2. After a cost-benefit revealed that the trees in question would be more valuable as a source of maple sap than as cut timber, the Town entered into a contract with a local maple syrup producer and has been receiving income from this source ever since. It is the goal of the Town to continue supporting this source of funds and to explore other opportunities as they arise.

Late in the Second Stewardship Plan period, a three-year tent caterpillar outbreak occurred in part of the original maple lease area. Significant defoliation and mortality resulted,

necessitating the abandonment of the affected acreage. To uphold the terms and spirit of the lease agreement, an alternative sugarbush area was made available and the lessee was able to relocate tubing and pipelines so that the sap is currently being collected in tanks on the Farrar Farm tract.

DIRT TO TREES TO WILDLIFE

Under the last Stewardship Plan, the Randolph Forest Commission provided some of the funding used to develop the program called Dirt to Trees to Wildlife (DTW). DTW is an online database tool developed by UNH Cooperative Extension and NRCS that creates site specific reports that helps natural resource managers make informed decisions on how to manage forest resources to create, maintain, or enhance wildlife habitat. DTW starts at the soil level to determine the forest type or types that are suited for the soils associated with the area of interest. The reports produced make recommendations for tree species composition, tree diameter distribution and associated wildlife species. To view the DTW program go to:

<https://www.dirttreeswildlife.org/>

The outputs from DTW will be used in conjunction with the results of the recent timber inventory, and field observations to develop stand level prescriptions to identify

- Wildlife habitat improvement opportunities
- Wildlife habitat enhancement opportunities
- Opportunities to increase tree species diversity by establishing softwood tree species regeneration on the appropriate soil types
- Continue to design timber harvests to improve overall quality and forest health

CLIMATE CHANGE

As climate change becomes more evident the impacts of changes in weather patterns and the related stresses of more intense storms, more frequent droughts, and shorter and lower snow winters will potentially have negative impacts on forest growth and sustainability. The Randolph Community Forest in consultation with the managing forester, currently LandVest will need to carefully monitor forest conditions and changes. All management decisions related to trees, but to infrastructure as well, must be focused on the implementation of management strategies designed to build resilience into the forests. The key to resilience is maintaining biologically rich forests that have the natural capacity to survive changes in climate, the invasion of pests and most critically the impacts on tree health, vigor and growth that will reduce forest health and potentially lead to serious negative consequences for forested stands. The key is regular monitoring of the community forest and the careful assessment of those observations to determine how best to react to change.

Managing timber operations more carefully to further reduce damage to soils and the

residual trees. Healthy soil, less damage and the maintenance of stands stocked with healthy stems at higher stocking levels will be crucially important to building and maintaining resilience. Ongoing improvements in water crossing on roads will continue to return the watersheds associated with the Randolph Community Forest to a more natural state. When the watershed is healthy, the associated ecosystems will be more resilient.

Forestry is a long-term enterprise. It will take a thoughtful approach to understand and work to mitigate wisely the impacts of climate change. Investing in the most current forest science is crucial to the maintenance of viable forests that support all a forest’s biological and economic benefits. Focusing on the reality of climate change and the building of resilience in the forest, resources will enable the Randolph Community Forest to support and or maintain wildlife species, wildlife habitat, and tree species diversity.

ACCOMPLISHMENTS 2013 TO 2023

TIMBER HARVESTING

At the heart of any forest stewardship plan is, of course, management of the timber resource. The overall health of the forest can be measured by the sustainability of the harvesting regime: the amount and type of wood produced over time and how that harvest volume compares with the growth of the forest which takes place naturally over the same period of time, Looking back over the Second Stewardship Plan we see the following.

Accomplishments

Timber Management:

	<u>Clearcut</u>	<u>Shelterwood</u>	<u>Thinning</u>
Acres Treated	40	655	655

Total Acres Treated = +/-1,350 acres or 17% of the forested acres(+/- 8,697 acres) managed for timber production.

Timber Harvest:

	<u>Saw Timber</u>	<u>Pulpwood</u>	<u>Fuel wood chips</u>
	1,295 MBF	18,367 USGT	3,422 USGT
Cord Equivalentents	2,556	7,072	1,318

Total Cords Harvested 10,946 gross cords

The first timber sale with LandVest as the forest manager occurred the winter 2017-2018. Between 2017 and 2023 a total of 10,946 gross cords were harvested (pulpwood and sawlogs combined). The annual allowable cut (AAC) for the Randolph is estimated at a conservative 3,600 gross cords per year. Annual harvesting on the Randolph Community Forest 2017-2023 averaged 1,824 gross cords per year approximately half the ACC for the property.

TIMBER INVENTORY

A timber Inventory forms the basis for all subsequent management planning; therefore it is important to design the inventory to achieve the necessary level of precision to provide reliable results and sound recommendations. A forest inventory is typically conducted through one or more sampling methods. Data is collected at sample points and results are expanded to represent the larger forest unit; stand or stand type. The greater the variability and value of the forest, the more intense the inventory needs to be to achieve the desired results.

Inventory Design

The 2024 inventory was a stratum-based cruise. This inventory design allows for increased efficiency and reduced costs while maintaining statistical goals. This is achieved by utilizing a smaller number of sample points compared to a traditional tract level inventory. With the stratum-based design, stands are grouped together with similar stands to create multiple strata. Sample points are then allocated to each stratum. Traditional tract level inventories distribute sample points across the whole property, typically with uniform spacing between sample points. A traditional tract level inventory for the Randolph Community Forest would require significantly more sample points to achieve the same statistical results. However, the results of the stratum-based inventory are only statistically valid/relevant for planning purposes. For the purposes of accurate valuation, or growth and yield modeling, a more detailed inventory of the property would be required.

The cruise point stratum allocation was based on management stage. Stands were grouped into one of three strata based on current stand typing, management history, and knowledge of the property. A total of 300 sample points were divided among the strata, weighted based on the silvicultural stage of each stratum. Non-commercial stand types, such as wetlands, high elevation areas, and pre-commercial stands were removed from the inventory area.

Stratum 1 consists of stands that are transitioning from non-commercial (seedling and sapling) to commercial (Pole timber) size class. These stands would be considered for a first-time commercial entry during the next 10-year management cycle. A total of 572.45 acres were assigned to this stratum, with 10% of sample points allocated (30 points).

Stratum 2 consists of stands that have been managed within the last 10-15 years. These stands are less likely to require management during the next 10-year management cycle and are more likely to have accurate stand typing information. However, depending on the last treatment, forest health, and other factors, some of these stands could see new treatments during the next 10-year management cycle. A total of 2,604.19 acres were assigned to this stratum, with 30% of the sample points allocated (90 points).

Stratum 3 consists of stands that are in the Pole timber or sawtimber size classes that have not been managed during the previous 10-year management cycle. These are stands that would be considered for the bulk of treatments prescribed for the next 10-year management

cycle. A total of 5,029.00 acres were assigned to this stratum, with 60% of the sample points allocated (180 points).

Methodology

A 15 Basal Area Factor (BAF) prism was used to select the sample trees on each data point. All tree species in the five-inch diameter class (4.51 in.) at DBH (Diameter Breast Height, 4.5 ft above ground level) and larger selected as sample trees were tallied. Species, DBH, and growing stock level (acceptable/unacceptable), were recorded for each tree sampled. For 270 sample points, product heights in 8-foot sections were recorded for each sample tree in or above the 5-inch diameter class. Products were not recorded for 30 sample points within Stratum 2. DBH was measured using calipers at 4.5 ft. on the uphill side for all merchantable trees tallied. One merchantable tree height was measured using a clinometer at each data point. See the appendix for the complete cruise specifications.

All field data was collected using Woodland Solutions Group’s MobileMap application on Android tablets. The MobileMap application allows cruisers to navigate to sample points and record data within one application. At the end of the day, cruisers upload their data via an internet connection to Woodland Solutions Group’s Inventory Manager web application. The inventory data is securely stored on the Inventory Manager web application. The sample points georeferenced and their locations are also stored on the Inventory Manager web application. This means that the sample points can be re-visited to replicate this inventory in the future.

Table 2. Forest Product Specifications 2023 Timber Inventory

CODE	PRODUCT	SPECIES	MIN. DBH CLASS	MIN. TOP DIA. ISB	MIN. LENGTH	DESCRIPTION
NA						
0	SAWTIMBER	ALL HW	11"	10"	8'	Except Aspen. Min 2 CLF, max 25% internal defect, Straight (max 4" sweep)
		SP-FIR	7"	5"	16'	Sound, Straight, Free of Excessive Knots. Can call 8' after 16'
		HE TAM	10"	8"	12'	Sound, Straight, Free of Excessive Knots. <3" re knots <1" black knots. Can call 8' after 16'
		CEDAR	10"	8"	12'	Sound, Straight, Free of Excessive Knots. <3" re knots <1" black knots. Can call 8' after 16'
		PINE	10"	6"	12'	WP & RP. Sound, Straight, Free of Excessive Knots. <3" red knots <1" black knots. Can call 8' after 16'
6	TIE/PALLET	ALL HW	9"	8"	8'	Except Aspen. Straight (max 4" sweep) and Sound, No estimated internal defect or rot. 0-1 CLF.
		PINE	10"	8"	8'	Straight (max 4" sweep) and Sound, No estimated internal defect or rot. 0-1 CLF.
8	AG TIE/PALLET	HM RO YB	9"	8"	8'	Straight (max 4" sweep) and Sound, No estimated internal defect or rot. Min 2 CLF. Potential to grow into a sawlog or veneer.
1	PULPWOOD	ALL SPECIES	5"	4"	8'	24" maximum diameter, call pulpwood above sawtimber to merchantable hgt. If Top Diameter used no products called above the selected point on stem.
NA						
2	CULL	ALL SPECIES	5"	4"	8'	If Entire Tree, tally species & Dia., one cull segment and top diameter of 4

INVENTORY RESULTS

The results of the inventory show the property is comprised 35,362 MBF of sawlog, 13,934 MBF pallet and 80,256 cords of pulpwood. This equates to +/- 167,889 gross cords (sawlog, pallet, and pulpwood combined). Looking at the volume on a- per forested acre basis there is +/-20.3 gross cords per acre. The inventory results are present in Table 2.

Table 2 : 2023 Inventory Volume and Value

RANDOLPH COMMUNITY FOREST					
RANDOLPH AND JEFFERSON, NEW HAMPSHIRE					
VOLUME AND VALUE 2023					
TOTAL ACRES +/- 11247.6				FORESTED ACRES: +/-	8,269.00
SAWLOGS	VOLUME& UNIT MBF		VALUE/MBF		TOTAL \$ VALUE
AMERICAN BEECH	2,873	MBF	\$115	/MBF	\$330,383.50
ASPEN	806	MBF	\$50	/MBF	\$40,290.00
BLACK ASH	54	MBF	\$200	/MBF	\$10,880.00
BLACK CHERRY	59	MBF	\$115	/MBF	\$6,762.00
BALSAM FIR	517	MBF	\$150	/MBF	\$77,490.00
EASTERN HEMLOCK	900	MBF	\$55	/MBF	\$49,522.00
EASTERN WHITE PINE	69	MBF	\$200	/MBF	\$13,820.00
HARDWOOD PALLET	13,934	MBF	\$60	/MBF	\$836,046.00
PAPER BIRCH	360	MBF	\$125	/MBF	\$44,962.50
RED MAPLE	2,343	MBF	\$175	/MBF	\$410,060.00
RED SPRUCE	3,604	MBF	\$150	/MBF	\$540,570.00
SUGAR MAPLE	15,941	MBF	\$320	/MBF	\$5,101,088.00
WHITE ASH	3,041	MBF	\$200	/MBF	\$608,220.00
YELLOW BIRCH	4,795	MBF	\$320	/MBF	\$1,534,400.00
TTL SAWLOG	49,296	MBF	Total SAWLOG VALUE		\$9,604,494.00
CORD EQUIVALENTS	87,634	CORDS			
PULPWOOD	CORDS		VALUE/ CORD		
BALSAM FIR/RED SPRUCE	11,177	CORDS	\$2.00	CORDS	\$22,354.40
HEMLOCK	1,172	CORDS	\$2.00	CORDS	\$2,344.00
WHITE PINE	75	CORDS	\$2.00	CORDS	\$149.00
ASPEN	2,562	CORDS	\$25.00	CORDS	\$64,040.00
HARDWOOD	65,270	CORDS	\$25.00	CORDS	\$1,631,760.00
TTL PULPWOOD	80,256	CORDS	TOTAL PULPWOOD VALUE		\$1,720,647.40
GRAND TOTALS	49,296	MBF	TOTAL GROSS VALUE		\$11,325,141.40
	80,255.70	CORDS	TIMBER CAPITAL		
GROSS CORDS	167,889	CORDS	VALUE PER FORESTED ACRE		\$1,369.59
GROSS CORDS ACRES	20.30	CORDS			

TREE FARM CERTIFICATION

The Randolph Community Forest continues to be a certified Tree Farm. The American Tree Farm System has high Standards of Sustainability to verify that wood products and wood fiber coming from Tree Farms are from a sustainably managed source. Periodically a third-party auditor inspects the RCF to verify that the RCF is meeting these standards.

WILDLIFE HABITAT IMPROVEMENTS

Wildlife Habitat: In the late fall of 2021 early successional brontosaurus work was completed off the Jimtown Road totaling +/- 10 acres and apple tree release on Rollo Falls totaling +/- 2 acres.



Brontosaurus Work 2021

Four undersized culverts on the Pond of Safety Road were replaced with properly sized bridges in the summer of 2023 to improve aquatic organism passage and work towards restoring the Stag Hollow Brook watershed.



Second Bridge Crossing Pond of Safety Road 2023

ROAD NETWORK IMPROVEMENTS AND MAINTENANCE

The Randolph Community Forest contains an extensive logging road system consisting of three road systems for access throughout the forest. The three road systems are:

- Pond of Safety Road provides western access
- Jimtown Road provides eastern access
- Bowman Road provides central access

This valuable asset continues to be dynamic due to erosion caused by storm events, harvest needs, timing, and cost. The RCF road system is in equal condition as a whole compared to 10 years ago.

Individual storm events continue to have the tendency to be large and deposit significant amounts of precipitation in a short period of time. Most often the precipitation is in the form of rain. Large volume rain events or a short period of time cause significant overland flow of water as the precipitation is falling faster than soil can absorb the water. The overland flow of water reaches tributaries and the main-stream channels quickly filling channels to full capacity. Completely full and overflowing stream channels quickly washout undersized culverts and bridges cause significant damage.

Managing the RCF in response to climate change means managing the natural resources to help maintain and improve ecosystem health. When an ecosystem functions correctly, the watershed and the forest are healthy. To improve aquatic organism passage, the RCF replaced four undersized culverts on the Pond of Safety Road with properly sized bridges. The four culverts dating back to the Brown Company era. During this time water was viewed as a barrier that prevented access to timber harvest areas and the raw materials needed to supply the pulp mill in Berlin, New Hampshire. Whatever was on hand, old steampipe, fuel tanks, railcar frames that came close to fitting the water obstacle to be crossed were put in even if this meant filling in the stream to make it fit. At the time environmental standards were lower and laws for water quality had not been enacted. Fuel, labor, and equipment costs were lower. If a crossing failed it was not as expensive make the repair compared to today.

Three of the main road systems are open to the public, subject to gates and bars during mud or rainy season. Further descriptive and spatial location data for inventory and maintenance of culverts, water bars, and bridges will be stored in digital format as a coverage in the Randolph Community Forest geographic information system (GIS).

GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Digital spatial data continues to be an important tool to manage the natural resources and recreation activities on the Randolph Community Forest. The use, data updating, and the storage of spatial data continued to evolve over the last 10 years. Cloud storage is used to archive spatial data and can be retrieved quickly to produce a variety of maps. Spatial data is also stored on a portable hard drive at the Town Hall. GIS needs will continue to be evaluated and adjusted as goals and needs of the Randolph Community Forest change.

EDUCATION

The Community Forest Field Day continues to be held annually the first Saturday in August. Topics included:

- 2016 What a forester thinks about when marking for a timber sale
- 2017 New maps for the forest, documenting a timber harvest location, and forest tent caterpillar outbreak
- 2018 Recap of first LandVest supervised timber harvests and locating beech mast management plan
- 2019 Wildlife it is out there
- 2020 Covid Timber harvest summary
- 2021 Covid fallout and the effects on forest products
- 2022 Aquatic Organism Passage
- 2023 Pond of Safety bridge project

COMMUNITY FOREST WEBSITE

Randolph Community Forest continues to maintain a website for the forest. It can be found at randolphforest.org. The website is updated and maintained by a member of the Randolph Forest Commission.



Randolph Community Forest
Sustainable forestry & traditional uses on 12,100 acres in Randolph, NH

This is the first thing you will see when you go to the newly created Randolph website –
randolphforest.org

Randolph Community Forest



The website provides access to information and documents related to the management and activities of the Randolph Community Forest for anyone interested in learning more. Information on Forest happenings, documents(RFC minutes, first stewardship plan, conservation easement language, partnership agreements, and forest ordinance), partnership organizations with links to pertinent websites, and list of things to do on the forest. It is hoped that the forest website will continue to be used by residents and any interested people not only to learn about the happenings, but also to participate. It offers another venue for Randolph residents and people from surrounding communities, the chance to be part of activities on the Forest, as well as part of the decision-making process.

RECREATION

For decades, the Town of Randolph has been a hiking community. The hiking trails found on the Randolph Community Forest began to be established in the early 20th century when the property was owned by the Brown Company. The hiking trails were maintained through the years and several ownership changes until the Randolph Community Forest was created in 2003. Understanding the importance of the hiking trails to the Town of Randolph and the State of New Hampshire the conservation easement requires 75-foot buffers on either side of the recreation trails established on the Randolph Community Forest. Today there are +/- 17.5 miles of hiking trails found on the Randolph Community Forest. The hiking trails help to connect the Randolph Community Forest to the recreation opportunities found on the adjoining White Mountain National Forest.

The Randolph Mountain Club was formed to restore and or replace hiking trails on the northern Presidentials that were lost in the late part of the nineteenth century due to liquidation timber harvesting and forest fires. When the White Mountain National Forest was created, the trail worked continued on protected land. The Randolph Mountain Club maintains the diverse hiking trail network on the Randolph Community Forest.

It is difficult to estimate the number of outdoor enthusiasts that use the hiking trails on the Randolph Community Forest. It would suffice to say hundreds of hiking enthusiasts arrive annually at the various trail heads found on the Randolph Community Forest to embrace the solitude and serenity of a solo hike or trail run or meet with friends and family to hike an old familiar trail enjoying the warmth of kindred spirits.

The Randolph Forest Commission continues to recognize the importance of public access and recreational use on this multi-use forest. Improved access, parking, and road conditions continue to provide opportunities for many different recreational activities including fishing, hunting, snowmobiling, horseback riding, hiking, mountain biking, wildlife observation, and cross-country skiing. As new outdoor recreation opportunities are discovered, the Randolph Forest Commission will review each opportunity on a case-by-case basis to determine if the activity is compliant with the conservation easement, compatible with the values of the Randolph Community, and dovetails with the spirit in which the Randolph Community Forest was created.

Snowmobile Trail System

The snowmobile trails are maintained as needed by the Waubek-Methna Snowmobile Club. The snowmobile trail network is a vital link for riders moving between Jefferson, Lancaster, Gorham, Milan, and Errol, NH. Recent warm and at some points snowless periods have made snowmobile recreation difficult at times in the north country. Fortunately, the RCF occupies elevation that receives snow more often than rain when compared to other locations.

Cross-Country Skiing

The RCF road and hiking trail system together with “skid” trails used by loggers to remove wood, continue to provide opportunities for cross-country skiers. The remote locations of some of the roads and trails found on the RCF offers cross-country skiers the opportunity to enjoy the solitude of their sport with little worry of trail overcrowding. Trail assurance markers on hiking trails and signage placed identifying road names have been hung to assist individuals using the trail network on the RCF to help determine their location.

Backcountry Ski Area

Midway through the Second Stewardship Plan the Randolph Forest Commission entered into an access agreement with the Granite Backcountry Alliance, a group that promotes and maintains a series of backcountry ski opportunities in the north country.

Bird Watching

Other synonyms for bird watching include avifauna observation, bird spotting, birding excursion, birding tour, birding trip, and bird photography. No matter what name is used to describe this wonderful low impact outdoor recreation activity bird watching has gained in popularity in recent years in New

England and on the Randolph Community Forest.

There is a “Birding Hotspot” on the Randolph Community Forest. The area is a wetland complex associated with the Farrar Tract north of Israel’s River. The area was first established as a “Birding Hotspot” in 2019 with 54 different species observed by the Fall of 2019. David Forsyth was instrumental in bringing the “Birding Hotspot” to fruition. The “Birding Hotspot” is used as a resting area by birds in the Fall migrating south to warmer climates and on the return trip in the Spring on the way to nesting grounds further north. Bird observations as of the writing of this stewardship plan is +/- 150 different species.

BOUNDARY LINE AND TRANSECT MAINTENANCE

The property lines were repainted and brushed out where necessary. Over the last ten-year management cycle most of the property boundary lines have been brushed, blazed, and painted.

ACQUISITION OF NEW LAND

The Randolph Forest Commission continues to be successful over the past 10 years in acquiring additional properties and land in key locations. Over the last 10 years 8 parcels have been acquired totaling 807.58 acres. The properties include:

Rollo Falls	72.00 acres
Potter	244.74 acres
Town of Gorham	200.00 acres
Brady Parcel	88.55 acres
Brady Parcel	15.26 acres
Meiklejohn	32.00 acres
Berry	102.20 acres
Brown	52.83 acres

The updated maps showing acquired parcels by the Randolph Community Forest and Town of Randolph are included in the appendices.

FOREST RESOURCES

The Randolph Community Forest is a certified Tree Farm in the American Tree Farm System.

Forest History

The Forest History information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post 2023 forest inventory.

Little has been documented about early logging in the Randolph Community Forest, which is to say, logging that occurred one hundred years ago or earlier. One hundred years ago market demand and log transportation technology more or less limited harvesting to spruce, fir and white pine. Logs harvested from the Forest were most likely removed during the winter on sled roads. The streams are not large enough to support log drives and there is no evidence of railroad grades. Francis Belcher in his book *Logging Railroads of the White Mountains* makes a general reference to logging in the Stag Hollow Brook drainage during the 1870's including it with other logging that occurred along the railroad built between Whitefield and Berlin through Jefferson and Randolph. Spruce/fir was harvested in stands along the brook and brought by sled to the railhead at the junction of Route 115 and the railroad grade (Clukay, 2001).

Rev. Robert Hatch described the logging in the Forest that occurred during the late 1930's. It is surmised that this was prompted by the 1938 hurricane that blew over trees on exposed slopes. He said in 1940 he purchased the camp office building that had been used by the Brown Company along the Vyron D. Lowe Trail. They closed the camp that year and he took over the building to use as a hiking shelter. During the 1940's and 50's the Brown Company also had a camp along Stag Hollow Road approximately 0.7 mile east of the gate, compartment 2B, stand 15. Logs now could be trucked to sawmills and the pulp mill, which meant that hardwoods which are the major timber resource of the RCF could be harvested. During the late 1940's and 1950's a second logging camp was established in the Unknown Brook drainage (Neal, and Potter, 2003). Timber harvesting also occurred upslope from Bowman during the 1930's and 40's (Neal, 2003).

During the 1960's Brown Company contracted with Gerard LeBrecque to harvest timber in Stag Hollow including the Pond of Safety area. The terms of this contract were fairly general regarding the designation of trees to cut so essentially it was "logger's choice." During the late 60's and into the 70's timber sale contracts were prepared and supervised more directly by Company foresters resulting in improved stand management. Even during the late 60's some of the stands contained large hardwood trees that were designated for cutting (Grella, 2003).

In 1980 ownership of the land changed Companies as the pulp and paper mill was sold to James River Co. The Forest remained under the management of the foresters that had worked for Brown Co. During this era, the timber sale contracts, and sale administration was more controlled by foresters. Some stand treatments were stand clear-cuts while others were thinnings or uneven-age management single tree selection cuts.

In 1993 ownership of the land changed once again when it was transferred to the Hancock Timber Resource Group (HTRG). Foresters continued to prepare and administer timber sale contracts. In 1998 a devastating ice storm impacted much of the area on the east side and the upper elevation stands of the forest. The HTRG response was to clear-cut harvest as many stands as possible to utilize timber before its quality deteriorated. This harvesting was done during 1998-99 ceasing in 2000 when they agreed to sell this tract to the Trust for Public Lands.

Nothing has been documented about forest fires occurring within the Forest. However, charcoal from past burns has been found in various places throughout the Forest. These fires do not appear to have been intense enough to affect the long-term productivity of the land. They were the result of lightning caused fires years ago or caused by carelessness at old woods camps.



Evidence of ice storm damage in the Forest.

In summary, this history discussion sets the stage for future management. For over one hundred years it has been managed as an industrial forest; rather intensely during the past fifty. Almost all of the stands were entered for tree removal at least once and some more than once. Few stands are adequately stocked to support a thinning or are old enough to justify a regeneration cut. The '98 ice storm resulted in approximately 10% of the area, plus or minus, being in the regeneration age class. It also resulted in several poor-quality stands because damaged crowns have reduced potential growth or made the trees likely to die within the next ten years.

SPECIAL SITES

The Crystal Mine is a special site in the forest. It contains a vein of crystal quartz that was mined for radio crystals during WWII and continues to be a place where hobby mineral collectors go for specimens. This site has regional significance.



The Crystal Posse moving the Crystal to Safety



The Crystal on permanent display in the Randolph Community Library



The Crystal safely on display in the Randolph Community Library

MONTANE HABITAT

The high elevation montane forest and ledge outcrop areas are located at and above 2,500 feet. These fragile areas high elevation zones are no management areas under the terms of the conservation easement. The justification for this decision is the presence of thinner, fragile soils, slow regeneration (often stunted growth), subalpine conditions and general habitat with groves of high-elevation spruce-fir. Several exemplary natural plant communities are documented by the Natural Heritage Bureau, a subsection of New Hampshire Department of Natural and Cultural Resources (DNCR), in these montane forests. Species such as the boreal chickadee and other songbirds were observed during fieldwork in these areas.



Areas above 2,500 feet are considered no cut zones within the RCF. There are several hiking trails maintained by the Randolph Mountain Club that offer the main access into these areas.

INVASIVE SPECIES

The Farrar tract contains 12 patches of Japanese knotweed growing in a field and along the edges of the gravel pit and access roads. The Japanese knotweed is spreading. There are plans to eradicate the Japanese knotweed on the Farar Tract as part of the next 10-year management cycle 2023 – 2033.

The Farrar Tract is associated with a popular birding area. Japanese knotweed sprouts readily from broken pieces. Vehicles parking to access the birding area and recreationists have the potential to break off and carry off pieces of Japanese knotweed starting colonies in other areas of the Randolph Community Forest or in other off-site areas.

The Farrar tract also has at least one patch of Japanese barberry, but it does not appear to be spreading.



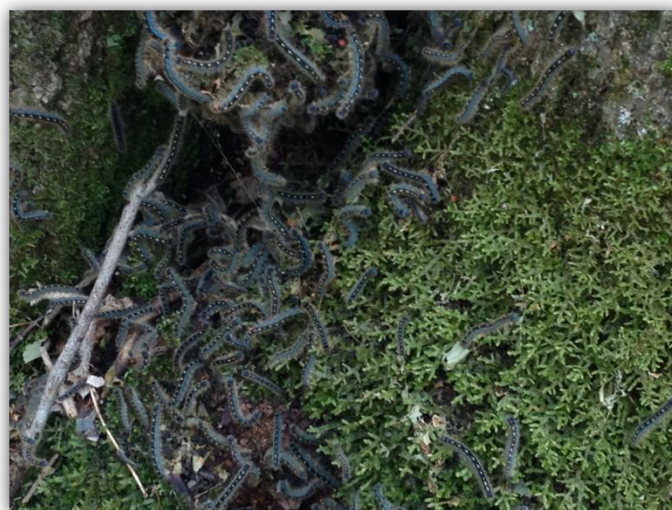
Japanese Knotweed Farrar Tract



Stock image Japanese Barberry for reference

FOREST HEALTH

In 2017 there was a forest tent caterpillar outbreak that occurred on the Randolph community forest. The outbreak started in the area of the maple tap lease area and the quartz mine.



Forest tent caterpillar Randolph Community Forest 2017



Forest tent caterpillar defoliation Randolph Community Forest 2017

Asian longhorn beetle (ALB) is presently established in Massachusetts near Worcester. More recently emerald ash borer (EAB) has been verified in Oxford, Cumberland, York, Androscoggin, Kennebec, Penobscot, and Aroostook counties in Maine. EAB has also been verified in all counties in New Hampshire, and in the Canadian Provinces of Quebec and New Brunswick. The quarantine areas and generally infested areas for these pests continues to expand as new detections are reported.

For the most up to date information on ALB, including the locations of most recent detections and current quarantine areas, go to:

<https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/asian-longhorned-beetle>

For the most up to date information on EAB, including locations of most recent detections and quarantine areas in the State of New Hampshire, go to:

<https://www.nhbugs.org/damaging-insects-diseases/emerald-ash-borer>

Shipping pallets and firewood are the primary vectors for movement of ALB and EAB. Recreational camps, campgrounds, and industrial parks are potential epicenters for an outbreak of ALB and EAB.

Recreational camps and campgrounds are high risk sites for the introduction of invasive pests because campers often bring out of state firewood with them and unknowingly bring the invasive with them.

Industrial parks are high risk sites for invasive pests because of the shipping pallets used to

move product from overseas. There are now requirements that shipping pallets be heat treated or sprayed with pesticide to kill insect larva.

Beech bark disease is an insect-fungal association beginning with infection by the scale insect *Cryptococcus fagisuga*. Very tiny and difficult to see with the naked eye, the insect exudes a white waxy substance covering itself that is visible. Within five years, the fungus *Nectaria coccinea* enters the tree through the wounds created by the insect. The fungus is not carried by the insect and the exact relationship between the insect and fungus has not been determined. The small red fruiting bodies of the fungus, found in clusters, mature in the fall. A pock-marked appearance may be observed on the tree where callus tissue has walled off the point of infection. Some trees are killed within a year, while others survive for several. Characteristics of a high-risk area are stands with a predominant number of large diameter trees, steep slopes and high basal areas. Extreme cold will kill the scale insect and stands of disease-free beech can be found in cold pockets. Control: There is no control measure applicable at this time. Management of the disease consists of salvage and keeping the rotation age for beech lower, resulting in smaller diameter trees at harvest.

Beech leaf disease(BLD) is believed to be native to Japan and was first detected in Ohio in 2012. BLD was first found in New Hampshire in 2022 and is found in all seven counties in the southern half of the state and as far north as Center Harbor. Researchers still do not fully understand how beech leaf disease spreads or how to stop it. BLD can be recognized by distinctive bands of darker-colored tissue between the veins of the leaves (often best seen from below), along with curling and distortion of the foliage. The leaves can develop a thick, leathery texture and may drop prematurely. In trees with a heavy nematode infestation, buds may be killed entirely, leading to branch dieback and eventually the death of the tree. BLD nematodes invade beech buds in the summer and fall, then feed and overwinter in the buds causing the damage we see in the spring. Nematode eggs are dispersed in the spring as leaves expand and might be spread by birds, insects, wind, or splashing rainwater. Trees in southern New England seem to be dying quickly (within 3-6 years) after infestation, with the effects of beech leaf disease likely compounded by other stress factors such as drought, winter injury, and other pests and pathogens. Control: While a few treatments may be somewhat effective in bolstering trees' natural defenses and reducing the nematode population, none have been successfully applied in a forest setting and there are no widely recommended treatments yet.

Balsam woolly adelgid (*Adelges piceae*) infests firs (*Abies*) and was introduced to the United States around 1908 from a nursery stock from Canada. The adelgid feeds on the phloem of twigs and the main stem of fir trees and can be seen as white specks. This then causes crown dieback and mortality. BWA causes cells to swell up, causing sapwood to prematurely turn into heartwood. This can lead to rapid tree death if the stem is heavily infested. When BWA feeds on twigs, swelling occurs and can often be found in the upper crown where it can persist for years and start to resemble a golf ball on a tee which causes growth loss and gradual canopy deterioration. Control: There currently is not a way to minimize the long-term effects of BWA. Natural selection will increase

levels of tolerance and resistance to the insect. In managed host stands, managers can reduce impacts when regenerating, thinning, or partial cutting by planting and selecting resistant species, and by the retention of mature individuals that appear resistant. *Control:* Sanitation of the stand is the most effective method of reducing the impact of an active infestation. To prevent infestation, tree vigor must be maintained so that stress does not negatively hamper the ability of the tree to fight off the actions of the disease. Thinning in young stands is very effective in achieving this goal.

INTEGRATED PEST MANAGEMENT

Integrated pest management strategies will be used to try to contain the spread of invasive plants, especially purple loosestrife and Japanese knotweed, and an invasive insect, the emerald ash borer. Purple loosestrife shall be controlled by uprooting and bagging individual plants where they are found growing. Patches of Japanese knotweed shall be cut at ground level in June and early August. After the August cut, herbicides will be applied to the tops of cut stems followed by repeated treatment to any surviving stems the next growing season. During field mowing, the patches should not be cut to reduce their spread in that manner.

The State of New Hampshire has placed a ban on bringing firewood into the State and into Counties to restrict the spread of destructive insects. This is one of the strategies to control Emerald Ash Borer (EAB). In the future the State may use bio-controls to reduce the rate of spread of EAB. The State is trying to identify, cut and remove affected green ash trees in Concord. Stands that have a high number of ash trees in the Randolph Community Forest shall be inspected annually looking for the potential presence of EAB. The spread of this insect will be monitored and if it appears imminent that it will be in the forest then trap and sink trees will be made to try and contain the spread. Ultimately, stands with a significant volume of ash shall be thinned to utilize the trees before they are infected.

HIGH CONSERVATION VALUE FORESTS

The Randolph Community Forest provides a key protected land area between the Kilkenny Unit of the White Mountain National Forest to the north and the main body of the WMNF to the south. This does not meet the Tree Farm definition of a high conservation value forest, but it is regionally significant.

GEOLOGY

The Geology information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post forest inventory.

Geologic events that occurred thousands and millions of years ago still influence the management of the forest today. Parent bedrock material that was formed millions and hundreds of million years ago provide the nutrients for vegetation today and to some extent determine

which species will grow where on the forest. The last glacier broke apart, transported, and dumped or deposited the material in a way that has an even stronger influence on what species will grow where in the forest. The glacier also has an influence on the management options that are available today.

An era of granitic intrusions in this area occurred around five hundred million years ago. This was followed by a period of sedimentation and then plate tectonic shifts that metamorphized this material forming a rock, Olivarian granite that would weather relatively easily and break down into soil particles. During a period one to two hundred thousand years ago another granitic intrusion, the White Mountain magma series occurred. This material was not metamorphized and due to the way it formed and cooled, formed quartz particles that resist weathering and breaking down. The oldest bedrock is found in the middle and west portion of the forest, compartments 1A&B, 2A&B, 3A. Refer to Map 3. The more recent material is found in the vicinity of Mt. Crescent and the Pilot Range to the north. The Olivarian granite contains more of the base cations, calcium, magnesium, and phosphorus and provides these nutrients to the soil primarily on the west half of the forest. The granite formed during the White Mountain magma series breaks down and weathers into a coarser soil that does not provide as much nutrients as the soils on the west half of the forest.

Fifty thousand years ago the Wisconsin stage of glaciation began. This glacier ground and transported bedrock and soil material in its path in a southeasterly direction from its origin. It also homogenized bedrock material somewhat, mixing the various materials together. It transported the rock and soil material, till approximately 3-5 miles, 10-20 miles at most. According to a glacial drift model developed by Dr. Scott Bailey, a geologist at the Northeast Forest Experiment Station, Hubbard Brook, the ridge of high ground from Lookout Ledge to Mt. Randolph and on northward marks a divide between a higher index of calcium, 2.0-2.4, to the west, compartments 1A&B, 2A&B, 3A, and less calcium, 1.7-2.0 to the east, compartments 3B, 4A&B. Refer to Map 3. This is apparently due to the calcium that is available from bedrock material.

Approximately 10 to 15,000 years ago the glacier began to recede. Over the area of the forest, the glacier simply dumped much of its material in place. That is to say there was not any sorting or rearrangement of soil or rock, it simply melted down to the bedrock beneath it. This is described as a fine till that contains a mix of particle sizes from rock fragments to sand and silt particles (Leak, 1978). Over much of the forest area the fine till was deposited on top of a hard platy layer or hardpan. The hardpan is often impervious to water draining through it or tree roots growing into it. Dry compact till habitat forms a rolling, ridge-like, or convex topography. This is present over most of the forest and supports the northern hardwood cover type of sugar maple, beech, and yellow birch. A wet compact till that forms a flat or depressed topography is also present especially in the Stag Hollow Brook drainage. It is this area where the spruce-fir type grows.

Along Stag Hollow Brook, glacial melt waters sorted soil particles into different layers according to size. This is one of two areas of outwash habitat on the forest. The other is along the upper reaches of Great Ledge Brook. Refer to Map 5. This too supports a spruce-fir cover type.

The final habitat type attributed to the glacier is the washed till habitat. This was till rinsed by water causing much of the fine soil particles to be carried away by glacial meltwater. Some of this habitat is found on the lower slopes of the forest. Beech, red maple, and paper birch are found on this type.

In summary, the bedrock and resultant soil formed during past geologic periods together with the transport and deposition of this material by the glacier is a strong influence on the trees, shrubs and herbaceous vegetation that grows on the forest. The most influential is the type of till or outwash that was deposited, and whether or not the till lies on top of a hard pan layer. Sugar maple, beech and yellow birch grow on the fine till and dry compact till soil; beech, paper birch and red maple grow on the washed till; spruce-fir grows on the outwash and wet compact till sites. These are the species best suited to these respective habitats and whose regeneration and growth will be promoted.

SOILS

The Soils information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post forest inventory.

An analysis of the soil types reveals that over 95% of the forest area supports the forest management objective to grow high quality saw timber products. Most of the soils are sandy loams or fine sandy loams, fine till, which are well suited to the growth of sugar maple, yellow birch and white ash. Approximately 17% of the soils are either a coarse or fine washed till where beech, red maple and aspen will grow well. About 40% of the soil is a dry compact till where red maple, yellow and paper birch, and beech are more productive. Approximately 35% of the soil is a fine till where sugar maple will do best. About 8% of the soil is a wet compact till or outwash limited to the immediate vicinity of Stag Hollow Brook. Softwood stand management is limited to these soils. Refer to Maps 4 and 6.

Approximately 95% of the forest land area is underlain by a hardpan/dense basal till. This pan layer slows or limits the drainage of water down through the soil horizons, keeping the soil moist to wet especially in the spring, fall and winter. This may be beneficial to tree growth, keeping available water high for tree growth during the growing season. However, an implication is that equipment operations on this ground is limited to winter, or the months of July, August or early September provided the weather is dry, not rainy. Another implication is that road maintenance costs will be higher to ensure that culverts ditches and water bars are functioning to manage the potential increased run-off.

Research has shown that species composition and productivity vary among 11 forest habitat

types defined for areas of granitic drift in the White Mountains (Leak 1978). These forest habitat types are correlated with soil associations described by the Natural Resource Conservation Service. Table 1 illustrates the percent by area of habitat types within each compartment, the corresponding soil series, and the predominant tree species supported by the type.

Table 1: Summary of Soils throughout the Randolph Community Forest

Compartment	Soil Series	Forest Habitat Type	% of area	Predominant species
1B	Pillsbury-Peacham-Marlow	Wet compact till	65%	Red spruce, b. fir, red maple
	Peru-Pillsbury	Fine till	20%	Sugar maple, beech, y. birch
	Sheepscot	Outwash	14%	Red spruce, b. fir
2A	Monadnock-Hermon	Fine washed till	40%	Beech, y. birch
	Marlow-Peru	Dry compact till	18%	Red maple, birches
	Waumbek-Hermon	Course washed till	21%	Beech
	Skerry-Peru	Fine till over compact till	14%	Beech, P. birch, red maple
	Pillsbury-Peacham-Marlow	Wet compact till	6%	Sugar maple, beech, Y. birch
2B	Peru-Pillsbury	Fine till	40%	Red spruce, b. fir, red maple
	Peru-Marlow	Fine till over compact till	14%	Red maple
	Marlow-Peru	Dry compact till	29%	Sugar maple, beech, y. birch
	Pillsbury-Peacham-Marlow	Wet compact till	11%	Red maple, birches, beech
	Waumbek-Hermon	Course washed till	6%	Red spruce, b. fir, red maple
3A	Tunbridge-Lyman-Marlow	Dry compact till	40%	Beech, y. birch
	Peru-Marlow	Fine till over compact till	34%	Red maple, birches
	Peru-Pillsbury	Fine till	24%	Beech
3B	Peru-Marlow	Fine till over compact till	45%	Sugar maple, beech, y. birch
	Becket-Skerry	Dry compact till	35%	Red maple, birches, beech
	Monadnock-Hermon	Fine washed till	20%	Beech, y. birch

Compartment	Soil Series	Forest Habitat Type	% of area	Predominant species
4A	Becket-Skerry	Dry compact till	66%	Red maple, birches, beech
	Waumbek-Hemmon	Coarse washed till	26%	Beech, P. birch
	Skerry-Peru	Fine till over compact till	8%	Sugar maple, beech, y. birch
4B	Marlow-Peru	Dry compact till	83%	Red maple, birches, beech
	Beckett	“ “ “		
	Peru-Pillsbury	Fine till	11%	Sugar maple, beech, y. birch
	Pillsbury	Wet compact till	6%	Red spruce, b. fir Red maple

The above information aids in deciding where the management or promotion of various species is possible. For example, softwood cover type is only feasible in Compartments 1A&B, and 2A&B. The second finding is that uneven-age management on the dry compact till may be best done using group selection rather than single tree selection. Group selection would allow more sunlight onto the forest floor regenerating yellow birch as opposed to single tree selection which would result in more beech regeneration.

Current stand inventory data indicates that sugar maple is the most predominant species in almost all stands. It is speculated that past thinnings, and selection cuts discriminated against other species resulting in residual stands of sugar maple. Future regeneration prescriptions should consider which species would predominate on an area and make the appropriate prescription to regenerate those species.

Throughout the RCF, there are several pockets with hydric soils (soils classified by NRCS as poorly or very poorly drained). These wet soils merit discussion because they are prone to impacts associated with human use such as rutting and soil compaction. Hydric soils are formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. These soils have developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation (wetland plants). Many of these hydric soils in the RCF were formed from the dense, compact underlying till, which keeps water perched towards the soil’s surface. A listing of the hydric soils found in the RCF includes the following:

- Pillsbury-Peru Associations – poorly drained
- Pillsbury-Peacham-Peru Associations – poorly and very poorly drained
- Pillsbury-Peacham Associations – poorly and very poorly drained
- Peachman, Bucksport, and Rumney soils – very poorly drained
- Moosilauke soils – poorly drained

All data was taken from the NRCS soils map for Coos County. It should be noted that within any one soil map unit there can be up to 35% inclusions, due to the accuracy of the mapping. As an example, a soil classified as a well-drained (upland) soil, could have up to 35% of hydric soil throughout that mapping unit. On the other hand, a soil classified as poorly drained could have up to 35% upland soil found throughout that mapping unit. Therefore, in cases where the soil drainage classification is unsure, hydric soils should be identified in the field, in keeping with good forest management practices.

Water Resources

The Water Resources information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post forest inventory.

The numerous small ponds, brooks, seeps, and drainage flows located throughout the RCF are a valuable resource and the ‘life blood’ of the entire ecosystem. Without this network of hydrology the RCF would lose most of its plant and animal species and its rich diversity. Water resources throughout the RCF are of high quality and often are referred to as ‘pristine.’

Rivers & Brooks

The drainage for the Randolph Community Forest consists of headwaters for three sub-watersheds; the Israel River which flows in a westerly direction towards Jefferson and Lancaster and the Connecticut River, the Moose River which flows in an easterly direction towards Gorham and its confluence with the Androscoggin River. Refer to Map 1. A fourth headwaters area, the Upper-Ammonoosuc River watershed, which flows in a northerly direction towards Berlin, abuts the RCF along the northern easement boundary in the Pond of Safety drainage. Order 1 & 2 streams that flow from the RCF into these watersheds are summarized in Table 3.

Table 3: Summary of Order One and Order Two Streams throughout the Randolph Community Forest.

Sub-Watershed	Order One and Two Streams	Distance within the RCF	Compartment(s)
Israel River:	Priscilla Brook	2240'	1A
	Little Ledge Brook	8510'	1A, 1B
	Big Ledge Brook	12650'	2A, 1A
	Stag Hollow Brook	23127'	1B, 2B
	Unnamed Brooks	67395'	
	Sub Total	113922' Lineal	
Moose River:	Carlton Brook	5748'	4A
	Unnamed Brooks	93398'	
	Sub Total	99146' Lineal	
Moose Brook	Moose Brook - tributary	2600'	4B
	Sub Total	2600' Lineal	
	GRAND TOTAL	215668' Lineal (41 mi.)	

(The source of lineal drainage calculations is USGS Topographic Quadrants - digital raster graphics.)



Typical cobbly bottom perennial stream with forested riparian buffer.

Water Quality

Throughout the RCF all streams and flows are considered high quality, often referred to as pristine. These waters meet Class ‘A’ standards under the New Hampshire classification system, signifying that they could be used for a drinking water source with treatment, support high water quality aquatic indicator species and are fishable and swim- able. These flowage headwaters have excellent vegetative buffers and riparian zones. There are numerous small reservoirs consisting of concrete and rock construction that were used as drinking water sources in the past with the largest one, the ‘Randolph Community Waterworks’ that used to be a public drinking water source for a portion of the Town of Randolph, still being used as a private source.

Water quality parameters including temperature, turbidity, pH, and specific conductivity are assumed to be within favorable ranges based on observed plant, fish, and wildlife throughout the RCF. With the typical geological granite-based bedrock, pH is expected to run within the typical range of 6-6.7 found in Northern New Hampshire with a few inclusion areas that contain slightly more calcareous bedrock material where soils and water may be ‘sweeter’ approaching a pH reading of 7. This is especially probable in the eastern side of the RCF where geological mapping indicates potential calcium inclusions within the bedrock.

The perennial streams contain local wild brook trout that successfully spawn and maintain a population throughout the RCF. Many were observed during inventory for this report. Properly installed bridges and large culverts for logging road crossings have provided aquatic connectivity to allow a homeostatic regime to continue for these wild trout and other aquatic species.

There are minor erosion and sedimentation incidents in a few atypical locations. These are attributed to past logging and road construction prior to ownership by the Town of Randolph and are correctable.

Wetlands

There are numerous wetland complexes within the RCF containing a diversity of plant and animal species and habitat of varying function values. These wetlands are the core of life for the majority of plant and animal species and offer diverse habitats with numerous 'edges' needed by many species. It is estimated that riparian areas and wetlands are utilized by over 90% of the region's wildlife species and provide the preferred habitat for over 40% of these species. Future trails and/or observation points overlooking these wetlands provide an excellent opportunity for wildlife viewing.

Based on aerial photography, topographic quadrants, soils maps, and preliminary fieldwork, there are approximately 98 acres of wetlands in numerous classifications within the RCF, varying from open water to emergent to palustrine forested. (There are undoubtedly additional acres of forested wetlands that require field delineation and have not been documented as of this report.) Vernal pools are a unique type of wetland that are found within the hydrological matrix of the RCF and are further discussed in the wildlife section.

An interesting occurrence throughout this property is that of the cyclic movement and associated open water creation by beavers. By utilizing aerial photography taken in the past, it is possible to track beaver population cycles over 10, 50 or even 100 years. Once the mature timber was harvested from various areas and regeneration of successional growth was in the 3–8-year-old stage (mostly hardwood saplings) this abundant new food source attracted beaver. Beaver are unique animals in that they possess the ability to alter the environment around them by constructing dams and digging channels. Associated with this beaver activity, what was once an upland forest with upland soils begins the slow evolutionary process to becoming wetland species and hydric soils. Based on aerial photography and fieldwork in the RCF there are many acres of 'new' wetlands due to beaver activities, present and past.

Typically, beaver will build one or two dams on a perennial stream plus a lodge. Dams and lodges are built out of mud (organic topsoil layers and water) and saplings poles ranging from four to six feet in length. These poles are the residual of saplings cut down, sectioned, dragged into the water, and the bark removed as the beaver feed on the cambium inner bark layer. As the sapling supply is consumed immediately around the safety area provided by the pond water, beaver will excavate trenches further into the upland areas and/or will build the dam higher and longer. Restrictions to the size of the beaver ponds are generally due to slope abruptness and the proximity of reachable food/building materials. Eventually, usually three to five years, the beaver will move downstream or upstream and create new ponds and lodges, sometimes in a long series, perhaps miles long, seeking fresh young saplings. Another source of new ponds is the dispersal of

the 2- to 3-year-old offspring beaver from each colony as they are forced out of the ‘home’ area seeking new territory, often a considerable distance away.

This beaver/wetland creation cycle continues up and down these types of woodland streams over time when, eventually areas that were first dammed, on roughly a 20–30-year cycle, slowly return back to the original small streambed in size and characteristics. Typically, the sedimentation and pedoturbation (mixing of soils) of the former beaver pond and activities has supplied rich hydric organic soil for the successional growth of; emergent vegetation, to grasslands, to shrub-shrub saplings. The beaver is a rodent, the largest in North America, and is prolific, as all rodents tend to be. With very little impact from predators and few individuals participating in regulated trapping, beaver are rapidly returning to former populations of the pre-Colonial period. Because of these modern trends, the saplings stage of succession in old beaver ponds does not continue the process to mature forest stands. The beaver generally re-inhabit the young sapling food source by re-building dams and lodges on or near the original sites.



The left photo shows an active beaver pond found in the southeastern portion of the RCF. On the right is a wetland in the central area of the RCF where beaver have left the area. The wetland on the right has dried up dramatically due to the lack of beaver in this area.

The cyclic activities of beaver as their population increases have effected this property and many other properties throughout New England. The flooding of upland forest soils slowly kills off the mature trees not directly utilized by the beaver. Also, the inundated soils slowly revert from aerobic to anaerobic conditions with increased vegetation decomposition and sedimentation, forming hydric soils and expanded wetlands. Beaver activities flood small, wooded areas that create natural high-quality wetlands of diverse, rich habitat.

TIMBER

During the past ten years the timber resource was managed to provide income and improve the age/size class distribution of stands reallocate growth with a focus on removing poor quality trees. The result of this effort is shown in the following table:

	2003	2013	2023
Sawlog Cords	37,366	37,876	87,634
Pulpwood Cords	59,086	73,601	80,256
Gross Cords	96,452	111,477	167,889

There are several factors that are influencing the increase in volume. The most significant is that the Randolph community has made the deliberate decision to steward the natural resources associated with the Randolph Community Forest. Taking this long-term view for managing the natural resources permits the managing forester to practice the correct silviculture on the right acre at the correct time of the year. During the time period of 2017 – 2023 +/-10,946 gross cords was harvested covering +/- 1,350 acres. This equates to +/- 1,824 gross cords harvested annually or +/- 8 cords per acre.

This long-term view means making investments in roads and trails to improve aquatic organism passage to improve the health of the ecosystem. When the ecosystem is healthy and functioning correctly the forest and associated natural resources are more resilient to the effect of climate change.

When the Randolph Community Forest was established, there were many forest stands in the sub-merchantable diameter classes. The 2023 inventory indicates that some of the increase in volume can be attributed to some of these sub-merchantable stands making the first forest product jump from sub-merchantable to merchantable (pulpwood). When this happens, there is usually a big jump in volume. The volume did not just appear. The volume was there, it was just too small to be counted in timber inventories. Careful timber marking, layout, and timber harvesting worked to protect these sub-merchantable trees that were present in forest stands with merchantable diameter classes comprising the overstory.

The additional volume can be attributed to the differences in inventory design. The 2003 and 2013 inventories collected data in stands that had the potential to for timber harvesting with the goal of having 10% of forested acres in early successional habitat. Data was processed using NED. Information of where the plots were located in compartments and cruise specifications were unavailable when designing the 2023 inventory. The 2023 inventory was a strata-based inventory intended to evaluate the timber resource, identify wildlife maintenance/habitat opportunities, and develop a 10-year activity schedule. The 2023 data was processed using MBG tools developed by Mason, Bruce, and Gerard a national natural resource biometric firm.

Growth and Allowable Harvest:

In order to recommend silvicultural activities, the owner and forest manager need to know the condition of

the standing forest and its growth over time. With the recently completed forest inventory, we have solid, detailed strata information. Then one needs to have an estimate of annual growth, to understand where the forest is heading and how best to manipulate that growth to satisfy the timber goals of increasing health, value, and quality.

The 2023 LandVest inventory data was transferred into a database format compatible with the USDA Forest Service's growth and yield model, Forest Vegetation Simulator (FVS), database extension. The data was then processed using the FVS-Northeast variant (FVS-NE; RV: 11/20/13) with strata specific silvicultural scenarios. The resulting projected tree lists for 10 years, one cycle, were produced for standing inventory and harvested volume and then processed as described below.

Following the growth and yield projections in FVS, individual trees contained in the grown tree lists were segmented into products. The product class of each 8-foot segment determined during the inventory process was retained in the projected data with the exception of two changes. Trees containing sawlog products at the time of inventory but designated by the cruiser as "Unacceptable Growing Stock" were reclassified as pulpwood in later years. Trees classified as "Acceptable Growing Stock" with a diameter at breast height (DBH) less than the minimum pulpwood specification (5 inches) were reclassified as pulpwood in the grown data. Therefore, future valuations based on these projections will likely be conservative.

In estimating the volumes of each bole segment, we used the taper equations of Westfall and Scott (2010). A 0.5-foot allowance for stump height was used for all trees of all product classes. A small end and large end diameter were estimated for each 8-foot section using the Westfall and Scott taper equations. Logs designated as sawlog products with a small end diameter less than 4 inches or pulpwood with a small end diameter less than 3 inches were removed from further processing. Volumes for each section were estimated using either cord units of 85 cubic feet (Smalian's formula) for pulpwood and growing stock or board feet for sawlog products, using the International $\frac{1}{4}$ log rule.

Based on the FVS run, the calculated annual growth, forest wide is:

- 0.44 Gross Cords/Acre/Year

This number is in line with typical estimates of like forest types in the region and we believe it to be a solid number with which we can produce an annual allowable harvest in terms of volume.

Since the landowner desires increasingly well stocked stands with higher quality and value than when management was initiated, and with a comfort level with the intensity of the silvicultural management done to date the decision has been made that the annual allowable harvest can equal annual growth. The following gives the formula for our estimate of annual and periodic growth and from this, annual harvest volumes.

- Annual Estimated Volume Growth = 0.44 Gr. Cd./Ac./Yr. x 8,269 Comm. Forest Acres

- Annual Volume = 3,638 Gross Cords growth
- Annual Harvest = 3,600 Gross Cords/Year Harvest
- Estimated Harvest Yield for next 10 Year Cycle = 36,000 Gross Cords

On 8,269 acres of commercial timberland this growth rate of 0.44 Gross Cords/Acre/Year translates into an annual growth of 3,600 cords of total volume. The RCF's goal of growing a bigger, better, diverse forest drives a conservative approach to harvesting and has led to an increase in volume and larger stems being present across the different forest types found on the property. The annual allowable harvest will be +/- 3,600 gross cords per year. The anticipated 10-year harvest volume is +/- 36,000 gross cords for the management period of 2023-2033.

During the time period of 2017 – 2023 +/-10,946 gross cords was harvested covering +/- 1,350 acres. This equates to +/- 1,824 gross cords harvested annually or +/- 8 cords per acre. Historically the RCF conducted timber harvesting activities every other year. Soils on the RCF are best suited for winter timber harvesting under frozen condition or during an extremely dry summer. Winters in northern New England have been changing. In recent years winter has been warm with little snow. Lack of freezing temperatures and low snowpack has made it difficult conduct timber sales. Timber harvesting has not started until the second week in January and in the winters of 2022-2023 and 2023-2024 stopped the first week in March. This narrow operating window has made it difficult to complete harvest units. Moving forward the size of the harvest units will be adjusted in an attempt to fit within this new winter operating window. This may result in years where annual harvest volumes during the 10-year management period 2023 -2033 is less than 3,600 gross cords. Should there be a winter that where operating conditions are more in line with typical New England extended temperatures below freezing and several feet of snowpack, annual harvest may exceed 3,600 gross cords. However total harvest volumes over the 10-year management period 2023- 2033 will not exceed 36,000 gross cords unless there is an insect or weather event that warrant salvage harvesting. Salvage harvesting will occur only after writing and amendment to MRMP and consultation and review of the salvage area with the conservation easement holder.

STAND DESCRIPTIONS AND MANAGEMENT RECOMMENDATIONS

Please refer to the Forest Stand Map for locations of the following forest stand descriptions

The use of salvage timber harvest is not written in the individual stand management recommendations. Salvage harvests as the name suggests is intended to capture the volume and value of the timber resource before it is lost. The event(s) that would facilitate the use of a salvage harvest include but are not limited to severe weather events (wind, ice storm, or drought) and insect(native or invasive) infestations that causes

damage through defoliation or other means that results in or will cause significant tree mortality resulting in the loss of volume and value of the timber resource. Each event will be reviewed on a case-by-case bases to determine the severity, the size of the area impacted, potential water resources affected, and potential special management areas affected. Consultation with appropriate stakeholders will occur as needed. A harvest prescription factsheet specific to the impacted area will be drafted to document the event and outline the course of action that will be taken.

STAND TYPE NOMENCLATURE:

Major species group or dominant species, size class and density will classify the timber types found on this ownership. This standard, which is used commonly in the northeast, allows for quick interpretation once the type has been discerned. Following is the system used for this management plan and associated maps.

Type – Dominant species group or species, greater than 75% of species composition.

Timber Types

H	Hardwood
S	Softwood (Hemlock, Spruce/Fir, and Larch)
SH	Softwood and Hardwood, a mixture with Softwood dominant 75%.
HS	Hardwood and Softwood, a mixture with Hardwood dominant 75%.
P	White pine
RP	Red pine
PH	Pine and Hardwood, a mixture with White pine dominant 75%.
SP	Softwood and White pine, a mixture with Softwood dominant 75%.

Non-Commercial Types

CC	Clearcut
GP	Gravel pit
LG	Ledge
OB	Open bog
PR	Private road
WA	Water
YD	Yard or log landing

Size Class – 4 classes

1	Seedlings - Sapling	0.51” – 3.0” DBH
2	Sapling – Pole timber	4” - 7.0” DBH
3	Pole timber - Sawtimber	8” -11” DBH
4	Sawtimber	>12” DBH

Density

A	Overstocked
B	Fully stocked
C	Understocked
D	No stocking

Table 4. Current Forest Structure and Future Forest Structure as A Percent of Forested Acres

Size Class	Tree Size	Current Percent of Forested Acres	Goal Percent of Forested Acres
1	Seedling/Sapling	20	20
2	Sapling/Pole Timber	4	15
3	Pole Timber/Sawtimber	58	30
4	Sawtimer	18	35
		100	100

Forest Type Designation: H1-2B (Associated types H1B, H1C, and H2C)

Forest Eco-Type: Upland Hardwoods, A mixture of red maple, yellow birch, sugar maple, aspen, and white birch with a small component of balsam fir and red spruce.

Average Stand Age: Overstory 15 - 20 Years
Understory 5 - 10 Years

Site Index: 60 (based on the Sugar maple site index)

Forest Type Acreage: 1,036.93

Stocking Level: At or slightly below the B-line on Upland Hardwoods stocking guide.

STAND TYPE DESCRIPTION

General – This stand type represents approximately 12% of the total commercial forested acres on the property. The stocking is at or slightly below the B-line. This stand type occurs on a variety of sites. When this stand type occurs on somewhat poorly drained sites there is a softwood component on the moister microsites. On well-drained sites there is almost no softwood present.

Overstory - The predominant overstory species represented in this type are sugar maple, yellow birch, beech, and red maple. Quite often the mix of species on a stand-by-stand basis is altered as the result of slight drainage, aspect, and elevation variables, along with the results of past harvesting. Red maple and yellow birch are predominant in those stands that are somewhat poorly drained sites. Yellow birch, paper birch, sugar maple, and beech are found on the better drained more upland sites. As is often the case red maple actually finds its way into both scenarios with better quality in the latter. The overall quality of the overstory is good.

Understory – The understory is comprised of seedlings. Quality is affected by two factors. One is the proximity to moose wintering areas. Two is the age of the harvest. Yellow birch and red maple regeneration tend to be heavily browsed when this stand occurs adjacent to moose wintering areas. Stands that have developed prior to the increase in the moose population show less browse damage. Because these stands are somewhat older and taller, they are less palatable to moose. Where the majority of this stand type occurs the understory is made up of young, vigorous healthy individuals that have responded well to release. Yellow birch, white birch, sugar maple, and red maple make up the majority of the regeneration. On somewhat poorly drained sites balsam fir and yellow birch are the predominant species regenerated.

Growth – Field observation indicate that this stand should be allowed to grow unmanaged for the next 10 years.

Regeneration – When this stand occurs on somewhat poorly drained sites, past harvest activities have left a relatively sparse overstory that has changed the hydrology slightly. As a result, regeneration is scattered in pockets on the drier knolls. The pockets of regeneration range from a few square feet to several acres in size. The areas in between the drier knolls are occupied by raspberry, blackberry, and other early successional species. Over time, these regenerated areas are well on the way to new stand development. As

these pockets mature and absorb more water the areas occupied by the early successional species will regenerate to more desirable commercial species.

When this stand occurs on better-drained sites the regeneration is more evenly distributed. The quality and quantity of the regeneration also improves. Yellow birch tends to be the dominant species. Depending on the amount of red maple in the previous stand, red maple can regenerate from coppicing and sprouting, as well as from seed. As this stand type matures coppice with standards could be used to culture the best of the red maple sprouts.

Forest Management Restrictions - When this stand tends to occur on somewhat poorly drained sites, it is important that future harvest operation only be conducted in the winter under frozen conditions.

MANAGEMENT RECOMMENDATIONS — Even-aged management is recommended for this stand type with a 100-year rotation. The long-term goal will be to develop a two-age stand to add vertical diversity. Maintain current species composition. Based on field observations no management activity will be needed for the next 10 years.

Timber Stand Improvement - Timber Stand Improvement work in the classic sense is not recommended for this forest type.

Forest Type Designation: H3-4 B (associated types H2-3B, H3B, H3A, H3-4B, H4A, and H4B)

Forest Eco-Type: Upland Hardwoods, A mixture of red maple, yellow birch, sugar maple, aspen, and white birch with a small component of balsam fir and red spruce.

Average Stand Age: Overstory 80 - 100 Years
Understory 15 – 30 Years

Site Index: 60 (based on the Sugar maple site index)

Forest Type Acreage: 3,645.15

Stocking Level: At or above the B-line based on the stocking guide for Northern Hardwood stands.

STAND TYPE DESCRIPTION

General – This stand type represents approximately 42% of the total commercial forested acres on the property. This stand type occurs on mid to upper slopes. Northern Hardwoods comprises the majority of the total volume. Many stands in this type are approaching the 10 – 20-year mark since the last harvest.

Overstory – The majority of the volume occurs in the pole and sawlog diameter classes. Sugar maple, red maple, and yellow birch make up the majority of the sawlog volume. The bulk of the pulpwood volume is made up of beech, red maple, sugar maple, and yellow birch. Overall timber quality ranges from fair to good. The stand is almost divided evenly between acceptable and unacceptable stems. Abundant Beech scale explains the poor-quality beech stems. *Poria oblique* and epicormic branching is evident in some of the poorer quality yellow birch. Repeated browse damage caused by moose and stems resulting from coppicing explains the pulpwood quality red maple. Maple borer damage is evident in many of the residual sugar maple trees. This is often typical in released intermediate and suppressed stems due to their lack of vigor. On some stems the Maple borer has only infected one site. Other stems there are multiple Maple borer infection sites, some occurring opposite one another in effect girdling almost half the tree.

Understory – The current understory stand age is estimated to be between 15 and 30 years old. As the stand reaches the rotation age quality and quantity of the understory will become more important. Presently the understory is comprised mostly of large saplings/small poles of sugar maple, beech, and yellow birch. During the timber cruise conducted by LV it was noted that the quality of these understory stems were very good and would make future sawlogs. Better quality sugar maple stems tended to occur on the upper slopes, while better quality red Maple and yellow birch tended to occur on the mid slopes.

Growth – Field observations during the timber inventory indicates this stand would benefit from active management over the next 10 years.

Forest Management Restrictions – Varying drainage conditions will dictate when these stands can be operated. Field observations have revealed that there are a limited number of acres that can be operated in the summer. Stands that can be operated during dry summer months will be scheduled accordingly. To avoid ruts and residual damage, stands that occur on somewhat poorly drained or that are surrounded by poorly drained ground will be scheduled for harvest during winter months. Topography will have little or

no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS — Even-aged management is recommended for this stand with a 120-year rotation. Maintain current species composition for upland hardwoods. Management activities shall focus on the careful removal of financially mature sawtimber, while attempting to maintain the maximum opportunity for volume and value growth over the next 15 to 20 years. Stem quality dictates what silvicultural treatment will be used. Silvicultural treatments will try, and favor stand improvement through light partial cuts that retain basal areas near the quality line of the Northern Hardwood Stocking Guide. For smaller diameter residuals, the basal area will be sufficiently above the B-line to limit the negative impacts of shock and reduce residual stand damage and soil compaction.

MARKING GUIDELINES

Improvement Thinnings - This treatment is recommended for stands where stem quality is good. The purpose of this treatment is to reduce stocking and reallocate growth to better quality trees. Trees showing evidence of Maple borer or *Poria obliqua* will be harvested to leave a residual stocking level of AGS and UGS (to carry BA) at or slightly above the B-line.

Trees will be marked for removal that can be approached without creating undo damage to established growing stock and selected crop trees. The goal is to target stems for removal that capture value that is at risk or through removal will enhance the growth and value of selected residual crop trees. Residual basal area targets should maintain stocking at levels slightly above the B-line to prevent shock and decline and to keep stands fully occupied. Care must be taken to harvest stems that will not respond to release, have currently at-risk value, or are of unacceptable quality and will serve to release crop trees without lowering basal areas excessively.

SHELTERWOOD: This treatment is recommended for stands that are lacking the presence of advanced regeneration and where stem quality is fair. Shelterwood will also be utilized in stands where Maple borer, *Poria oblique*, and past logging damage are more prevalent. This treatment will be designed to release the best crop trees the stand has to offer while providing ample space to establish sugar maple, yellow birch, and red maple. The residual stand should be comprised of trees that can respond to 10 years of growth before the second entry is made. The second entry will target value and leave a stand of nurse trees that will provide training for the established saplings as they move into the understory. The removal cut should have sufficient volume to make it economically feasible.

SEED TREE: This treatment is recommended for the poorest quality H3-4A-B stands. These stands show the most Maple borer, *Poria obliqua*, and logging damage. These stands are dominated by unacceptable growing stock. In stands like this it is best to start over instead of culturing trees that will not respond to release in volume and certainly not in value. The residual stems will be left as individuals or small groups scattered throughout the stand so as to provide a source of seed to re-establish an understory of seedlings as rapidly as possible. Site disturbance to provide a mineral soil seedbed, where possible and environmentally suitable is recommended.

Timber Stand Improvement- Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION- Past timber harvesting was intended to reallocate growth. Advanced regeneration is present where gaps in the forest canopy created conditions suitable to regenerate shade tolerant hardwood.

Forest Type Designation: H3C (associated types H3C, H3-4D, H3CD, and H4C)

Forest Eco-Type: Sugar Maple-Yellow Birch - Beech

Average Stand Age: Overstory 20 - 30 Years
Understory 10-15 Years

Site Index: 60 (based on the Sugar maple site index)

Forest Type Acreage: 2,110.49

Stocking Level: Stocking is below the C-line based on the stocking guide for Northern Hardwoods.

STAND TYPE DESCRIPTION

General – This stand type represents approximately 24% of the total commercial forested acres on the property. This stand type occurs on the mid to upper slopes. This is a predominately Northern hardwood stand. Many of the stands associated with this type were harvested in the last 15 – 20 years under the Hancock ownership.

Overstory - Sugar maple, beech, yellow birch, and red maple make up the majority of the volume. Past harvesting functioned as regeneration treatments, either as a Seed Tree or final Overstory Removal. The current scattered overstory in the H3C stands were suppressed or intermediate individuals in the forest canopy prior to the last harvest. Suppressed or intermediate stems rarely respond to release. Sudden full exposure to sunlight causes shock, sun scald, and epicormic branching. The shock is followed by a decline that eventually leads to stem mortality.

Understory – The understory is comprised mostly of large saplings/small poles of red maple, sugar maple, yellow birch, beech, and white birch. The last harvest appears to have occurred in the wintertime under frozen conditions. Low stem numbers per acre can be attributed to the lack of mineral soil disturbance. Mineral soil disturbance is confined to the areas close to the main skid trails where most of the snow had been removed during the skidding process. Overall stem quality is fair. Evidence of moose browse activity was observed during the inventory which has affected the quality of the stems in this type. Overtime stem quality may improve as the moose population continues to decline.

Growth – Field observations during the timber inventory indicates portions of this stand would benefit from active management over the next 10 years.

Forest Management Restrictions - Varying drainage conditions will dictate when these stands can be operated. Field observations have revealed that there are a limited number of acres that can be operated in the summer. Overall, the majority of these stands should be operated in the winter under frozen conditions. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS — Even-aged management is recommended with a 100-year rotation. The long-term goal will be to develop a two-age stand to add vertical diversity. Maintain current species composition for northern hardwoods. Based on field observations, portions of this stand type would benefit from treatment during the next 10 years. When H3C are discovered with sufficient advanced

regeneration of desirable species an Overstory Removal would be recommended. The purpose of the treatment would be to fully release the younger more vigorous understory. Harvesting in the H3C stand type would occur with scheduled timber harvests in adjacent stands.

TIMBER STAND IMPROVEMENT- Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION – Advanced regeneration is comprised of yellow birch, sugar maple, beech, white birch, aspen, and red maple. Time is simply needed for the forest to reclaim the available growing space.

Forest Type Designation: SH3C (associated types SH3C and SH4C)

Forest Eco-Type Paper Birch – Red spruce - Balsam fir

Average Stand Age Overstory 30 - 40 Years

Understory 15 - 20 Years

Site Index: 50 (based on the Balsam fir site index)

Forest Type Acreage: 171.23 Acres

Stocking Level: Stocking is at or near the B-line based on the stocking guide for mixed wood stands.

STAND TYPE DESCRIPTION

General - This stand type represents approximately 2% of the total commercial forested acres on the property. Softwood dominated mixed wood stands occur mostly on lower slopes. Hardwood dominated mixed wood stands occur on the moister mid-slopes. The primary softwood species in this stand type are red spruce, balsam fir, white pine, and hemlock. The primary hardwood species in this stand type are red maple, yellow birch, and white birch.

Overstory - Overall stem quality tends to range from fair to good. Many of the poor-quality stems are the result of repeated browsing by moose when the stems were seedlings. Some of the red maple that escaped browsing as seedlings became damaged as saplings and small poles as a result of moose pulling strips of bark. Buds and new shoots provide more nutrition than bark. Bark is eaten only as a last resort. When this type of damage occurs, it tends to be concentrated. In area where bark damage is light; it is believed that moose pull the bark off just for something to do.

Understory - Overall stem quality ranges from fair to good. Balsam fir and red spruce represent most of the growing stock. Red spruce is less palatable as moose browse and can also withstand heavy wet snow loads. Yellow birch, red maple, and white birch that are found scattered amongst the red spruce will maintain good quality for several reasons. One, stems occurring in the denser pockets of red spruce are less likely to be browsed by moose. Two, stems will grow straight and shed branches earlier because of the shade provided by the red spruce.

Growth – Evaluate at five-year intervals for the next stand entry.

Forest Management Restrictions - This stand occurs on somewhat poorly drained sites. Any harvest operation should be scheduled during winter under frozen conditions. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS - A combination of even-aged and uneven-aged management to maintain species diversity, improve wildlife habitat and produce fiber for pulpwood and quality sawlogs. Under even-aged management the rotation age will be 80 – 100 years. Under uneven-aged management a 15 – 20 year cutting cycle will be implemented to create three age classes over time. Silvicultural treatments will be designed to maintain the vigor of overstory trees while favoring yellow

birch, red maple, and red spruce. Seed tree and patch cuts will be the preferred silviculture methods to release and establish regeneration of yellow birch, red maple, and red spruce for even-aged management to create a two aged stand to add vertical diversity. Individual tree and small group selection will be the preferred silviculture methods for uneven-aged management.

It is possible to grow acceptable yellow birch in this stand type. During future harvest leaving a shade tree on the southwest side of potential crop trees will prevent epicormic branching. It will be critical for potential white birch crop trees to remain in the upper levels of the canopy and not lose the race for sunlight. During future stand entries, harvest all white birch that does not hold a dominant or co-dominant position in the forest canopy. Over time the proportion of red spruce should be increased. This species is stronger and less palatable to moose and deer than balsam fir while maintaining the current hardwood species composition.

MARKING GUIDELINES

Seed Tree/ Patch Regeneration Cuts- Capture at risk or low-quality stems that are currently impeding the development of advanced and desirable regeneration. Patches cuts will be ¼ to 3 acres in size. While generally the size and distribution of these openings will be small, there will be instances where openings of several acres may be created. In these larger openings an effort will be made to leave stable retention patches. The purpose of retention patches will be to provide vertical diversity and provide a seed source. When possible yellow birch should be retained to provide seed and maintain a hardwood component.

Individual Tree/Small Group Selection - Capture at risk or low-quality stems that are currently impeding the development of advanced and desirable regeneration. Groups will range in size from 6-12 trees to ¼ acre in size. The intention is to create conditions suitable to regenerate shade tolerant softwood and hardwood.

TIMBER STAND IMPROVEMENT - Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION - Overtime, red spruce, white birch, white ash, and yellow birch will be the preferred species to regenerate. Although desirable, balsam fir and red maple are typically heavily browsed in some areas by moose (Some damage is caused by deer). This stand type due to soil and drainage favors regenerating balsam fir.

Forest Type Designation: HS3B (associated types HS3B)

Forest Eco-Type: Lowland mixed wood White birch, Yellow birch, Spruce, and Balsam fir

Average Stand Age Overstory 60 - 80 Years

Understory 15 - 30 Years

Site Index: 50 (based on the Balsam fir site index)

Forest Type Acreage: 80.4 Acres

Stocking Level: Stocking is at or near the B-line based on the stocking guide for mixed wood stands.

STAND TYPE DESCRIPTION

General – This stand type represents approximately 1% of the total commercial forested acres on the property. These stands occur mostly on the moister mid-slopes. This is predominately a mixed wood stand that is hardwood dominated. This stand is made up mostly of large pole/small sawlogs with scattered larger (12+ inch DBH) sawlogs.

Overstory – The quality of the hardwood overstory ranges from fair to good. The primary softwood species in this stand are red spruce and balsam fir. Aspen, red maple, white birch, and yellow birch comprise the majority of the hardwood volume. Future harvests should focus on reducing the number of unacceptable stems. Most of the white birch show evidence of decline. Past harvesting under the HTRG created too large of an opening in the forest canopy causing epicormic branching in the yellow birch. *Poria obliqua* canker is also present in some of the poor-quality yellow birch and white birch.

Understory – Overall stem quality ranges from fair to very good. The majority of the growing stock is made up of desirable commercial species. Future sawlogs will come from balsam fir, red spruce, and yellow birch. Stem quality is affected by site and the amount of browse activity. Browse tends to concentrate during years with heavy snowfall. In years of light snowfall, moose and deer tend to travel more. Browsing still occurs but the intensity is much lower. White birch should remain a small component in this stand type.

Growth – Field observations indicate this stand would benefit from active management over the next 10 years.

Forest Management Restrictions - This stand occurs on somewhat poorly drained sites. Any harvest operation should be scheduled during winter under frozen conditions. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS – A combination of even-aged and uneven-aged management to maintain species diversity, improve wildlife habitat and produce fiber for pulpwood and quality sawlogs. Silvicultural treatments will be designed to maintain the vigor of overstory trees while favoring yellow birch, red maple, and red spruce. Seed tree and patch cuts will be the preferred silviculture methods to release and establish regeneration of yellow birch, red maple, and red spruce for even-aged

management to create a two aged stand to add vertical diversity.. Individual tree and small group selection will be the preferred silviculture methods for uneven-aged management to create three age classes over time..

It is possible to grow acceptable yellow birch in this stand type. During future harvest leaving a shade tree on the southwest side of potential crop trees will prevent epicormic branching. It will be critical for potential white birch crop trees to remain in the upper levels of the canopy and not lose the race for sunlight. During future stand entries, harvest all white birch that does not hold a dominant or co-dominant position in the forest canopy. Over time the proportion of red spruce should be increased. This species is stronger and less palatable to moose and deer than balsam fir while maintaining the current hardwood species composition.

MARKING GUIDELINES

Seed Tree/ Patch Cuts- Using partial Overstory Removals to capture at risk or low-quality stems that are currently impeding the development of advanced desirable regeneration. While generally the size and distribution of these openings will be small, there will be instances where openings of several acres may be created. The size of the opening is dependent on the amount of balsam fir being harvested. When possible stable individual and retention patches will be left. The purpose of scattered individual trees and retention patches will be to provide vertical diversity and a seed source. Most of the acres in this stand type will be treated in this manner. Care must be taken to avoid damaging any acceptable growing stock.

Individual Tree/Small Group Selection - Remove individual trees and small groups where there is the greatest potential to regenerate softwood species. Groups will range in size from 6-10 trees to ¼ acre in size.

Timber Stand Improvement - Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION - Overtime, red spruce, white birch, white ash, and yellow birch will be the preferred species to regenerate. Although desirable, balsam fir and red maple are typically heavily browsed in some areas by moose (Some damage is caused by deer). This stand type due to soil and drainage favors regenerating balsam fir.

Forest Type Designation: HS1B (associated types HS1-2BC and HS1C)

Forest Eco-Type: Lowland mixed wood White birch, Yellow birch, Spruce, and Balsam fir

Average Stand Age Overstory 10 - 25 Years

Site Index: 50 (based on the Balsam fir site index)

Forest Type Acreage: 228.15 Acres

Stocking Level: Slightly below the B-line based on the stocking guide for mixed wood stands.

STAND TYPE DESCRIPTION

General – This stand type represents approximately 3% of the total commercial forested acres on the property. Softwood dominated mixed stands occur mostly on lower slopes. Hardwood dominated mixed wood stands occur on the moister mid-slopes. This stand is made up mostly of seedlings, small saplings with a few scattered larger diameter stems.

Overstory - The scattered overstory consists of stems that were un-merchantable during the last harvest. There were a few larger diameter trees (yellow birch) tallied during the inventory. These yellow birch trees were retained as seed trees.

Understory - The future of this stand is in the young vigorous stems of the understory. Overall stem quality is fair to good. The majority of the growing stock is made up of desirable commercial species. The understory is a mixture of spruce/balsam fir, yellow birch, and pioneer hardwoods (white birch, aspen, pin cherry and stripe maple). Stem quality is affected by the site and the amount of browse activity. The presence of stripe maple will give moose and deer an alternative browse to acceptable regeneration. Stripe maple can be browsed for years before the stem becomes unpalatable. As with other commercial species, repeated browsing eventually causes the stem to become tougher and harder to chew. At this point desirable regeneration will have had sufficient opportunity to become established and grow.

Growth - Field Observations indicates that this stand would not benefit from active management during the next 10 years.

Forest Management Restrictions - This stand occurs on somewhat poorly drained sites. Any future harvest operations should be scheduled during winter under frozen conditions. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS - Even-aged management is recommended for this stand with an 80-100-year rotation. The long- term goal will be to create a two-aged stand. Maintain current hardwood species composition and favor spruce over balsam fir. Scattered volumes and poor quality make it hard to justify entering the stand and risk damage to the better quality young growing stock. No management activities are recommended the next 10 years.

Timber Stand Improvement- Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION – Regeneration is between the C and B Line on the stocking chart. Species composition includes yellow birch, white birch, white ash, brown ash, red maple, red spruce, and balsam fir.

Forest Type Designation: S1-2B (associated types S1B, S2C)

Forest Eco-Type: Red spruce – Balsam fir

Average Stand Age Overstory 20 - 30 Years

Understory 5 - 15 Years

Site Index: 50 (base Balsam fir site index 50)

Forest Type Acreage: 117.03 Acres

Stocking Level: Is at or near the B-line based on the stocking guide for Spruce/Balsam fir

STAND TYPE DESCRIPTION

General – This stand type represents approximately 1% of the total commercial forested acres on the property. This stand type occurs on the flat lowland areas associated with the property. .

Overstory – The majority overstory is balsam fir and red spruce. Overall, the quality is good. Brown ash, red maple, yellow birch, and white birch occur on the edges of this type as the transition is made to better drained soils.

Understory – The understory is a combination of spruce/balsam fir seedlings. Field observations have revealed that balsam fir is more prevalent in the open areas and the spruce is more prevalent adjacent to shaded edges. Overall, the quality is generally good.

Growth – Field Observations indicated that growth would not increase from forest management.

Forest Management Restrictions – This stand type occurs on flat lowland poorly drained sites typically along or near the watercourses that occur on the property. When necessary, streamside management zones will be established to prevent sedimentation resulting from harvest activities. Any harvest operations should be scheduled during winter under frozen condition. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS - While not textbook uneven-aged management the goal will be to create 3 age classes with a 15 – 20 cutting cycle to maintain/increase species diversity and increase the vigor of the stands. A secondary goal will be to maintain retention patches with a continual overstory to provide winter cover for moose and white-tailed deer. Over the long-term an attempt will be to expand softwood stands where soil types will support softwood regeneration.

Timber Stand Improvement - As the established softwood regeneration grows it may be necessary to conduct a pre-commercial thinning. The purpose of this treatment will be to keep growth rates up, favor balsam fir/red spruce and avoid stagnation.

REGENERATION - Overall the regeneration in this stand appears to be healthy. There are some isolated areas of browsing damage. The long-term health of the regeneration is dependent on maintaining vigor. This can be accomplished through pre-commercial thinning. If this option is not economical a commercial entry should be made as soon as possible.

Forest Type Designation: S3B (associated types S3B, S3C, S4A, S3B, S3C(WP))

Forest Eco-Type Red spruce – Balsam fir

Average Stand Age Overstory 80 - 100 Years

Understory 10 - 20 Years

Site Index: 50 (based on Spruce/Balsam fir site index curve)

Forest Type Acreage: 268.66 Acres

Stocking Level: At or above the B-line based on Spruce/ Balsam fir stocking guide

STAND TYPE DESCRIPTION

General – This stand type represents approximately 3% of the total commercial forested acres on the property. There is a small hardwood component, which is mostly white birch, yellow birch, and red maple.

Overstory – The majority of the volume comes from spruce/balsam fir. The spruce is generally of good quality. The small poor quality hardwood component consists of white birch and aspen. These stems became established as a result of the past harvests.

Understory – The understory consists of small seedlings and small pulpwood size spruce/balsam fir. The pulpwood size stems are found in dense pockets scattered throughout the stand. These pockets can either be mostly spruce or balsam fir depending on the site. Small seedlings carpet the forest floor under the sawlog size stems where openings in the canopy have developed primarily from decline and mortality. The majority of the seedlings are red spruce and balsam fir.

Growth – Field observations indicate this stand type should be evaluated at five-year intervals to determine the time for the next stand entry. Quality and quantity of the advanced regeneration will be used to determine timing.

Forest Management Restrictions – This stand type occurs on lower poorly drained sites typically along or near the watercourses that occur on the property. When necessary, streamside management zones will be established to prevent sedimentation resulting from harvest activities. Any harvest operations should be scheduled during winter under frozen condition. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS – While not textbook uneven-aged management the goal will be to create 3 age classes with a 15 – 20 cutting cycle to maintain/increase species diversity and increase the vigor of the stands. Encourage a higher percentage of spruce. A secondary goal will be to maintain retention patches with a continual overstory to provide winter cover for moose and white-tailed deer. Over the long-term an attempt will be to expand softwood stands where soil types will support softwood regeneration.

MARKING GUIDELINES

Release Cuts/ Patch, Small Group Selection, and Strip Regeneration Cuts- Use of partial overstory

removals will capture at risk or low-quality stems that are currently impeding the development of advanced and desirable regeneration. While generally the size and distribution of these openings will be small, there will be instances where openings of several acres may be created. In these larger openings an effort will be made to leave stable retention patches. The purpose of retention patches will be to provide vertical diversity and provide a seed source. Most of the acres in this stand type will be treated in this manner.

Timber Stand Improvement - As the established softwood regeneration grows and new regeneration becomes established as a result of recommended silvicultural prescription it may be necessary to conduct a pre-commercial thinning. The purpose of this treatment will be to keep growth rates up (particularly in balsam fir) and favor red spruce.

REGENERATION - Overall the regeneration in this stand appears to be healthy. There are some isolated areas of browsing damage. The long-term health of the regeneration is dependent on maintaining vigor. This can be accomplished through pre-commercial thinning. If this option is not economical a commercial entry should be made as soon as possible.

Forest Type Designation: SH3B (associated types SH2-3B, SH3A, SH3-4B, SH4B)

Forest Eco-Type: Red spruce – Balsam fir

Average Stand Age Overstory 60 - 80 Years

Understory 10 – 20 Years

Site Index: 50 (based on Spruce/Balsam fir site index curve)

Forest Type Acreage: 247.63 Acres

Stocking Level: At or above the B-line base on the Mixed wood Stocking Guide.

STAND TYPE DESCRIPTION

General - This stand type represents approximately 3% of the total commercial forested acres on the property. This stand type has had limited active management during the last 10 years.

Overstory -The overstory is comprised mostly of red spruce, balsam fir, yellow birch, and red maple. Past harvesting focused creating conditions suitable to regenerate softwood to improve tree and wildlife diversity.

Understory -This stand occurs on more poorly drained sites. Past harvesting created conditions suitable to regenerate red spruce and balsam fir. Where larger openings were created in the forest canopy due to the removal of declining balsam fir overstory, aspen, yellow birch, and white birch has become established. The overall stem quality is good.

Growth - Field observations have indicated that this stand type should be evaluated at five-year intervals for active management.

Forest Management Restrictions - This stand type occurs on poorly drained sites. When this stand type occurs near watercourses, the necessary streamside management zones will be established to prevent sedimentation. Any harvest operations should be scheduled during winter under frozen condition. Topography will have little or no effect on the movement of equipment.

MANAGEMENT RECOMMENDATIONS – A combination of even-aged and uneven-aged management to maintain species diversity, improve wildlife habitat and produce fiber for pulpwood and quality sawlogs. Under even-aged management the rotation age will be 80 – 100 years. Under uneven-aged management a 15 – 20 year cutting cycle will be implemented. Silvicultural treatments will be designed to maintain the species composition and vigor of overstory trees while favoring yellow birch, red maple, and red spruce. Seed tree and patch cuts will be the preferred silviculture methods to release and establish regeneration of yellow birch, red maple, and red spruce for even-aged management. Individual tree and small group selection will be the preferred silviculture methods for uneven-aged management.

MARKING GUIDELINES

Seed Tree/ Patch Regeneration Cuts- Capture at risk or low-quality stems that are currently impeding the development of advanced and desirable regeneration. Patches cuts will be ¼ to 3 acres in size. While

generally the size and distribution of these openings will be small, there will be instances where openings of several acres may be created. In these larger openings an effort will be made to leave stable retention patches. The purpose of retention patches will be to provide vertical diversity and provide a seed source. When possible yellow birch should be retained to provide seed and maintain a hardwood component.

Individual Tree/Small Group Selection - Capture at risk or low-quality stems that are currently impeding the development of advanced and desirable regeneration. Groups will range in size from 6-12 trees to ¼ acre in size. The intention is to create conditions suitable to regenerate shade tolerant softwood and hardwood.

Timber Stand Improvement - Timber Stand Improvement work in the classic sense is not recommended for this forest type.

REGENERATION - Over the long term the regeneration that is established or will become established should remain healthy and vigorous. The key to maintaining vigor will be to make stand entries in a timely manner so stems do not have a chance to be affected by competition. Some browsing damage will occur from moose and deer. However, this type of damage will be acceptable to a point and can function as per-commercial thinning in some cases.

THREATENED AND ENDANGERED SPECIES NHB DATABASE

According to NHB records there are four documented species or exemplary habitats within the Randolph Community Forest and several others within the one-mile extended buffer of the RCF. The natural communities, vertebrate species, and plant species documented are in the tables below:



NHB records on the property(s):

	Mapping Precision	% within tract	Last Reported	Listing Status		Conservation Rank	
				Federal	NH	Global	State
Natural Community							
High-elevation spruce - fir forest system	Good	<1	2007	--	--	-	S4

NHB records within one mile of the property(s):

	Last Reported	Listing Status		Conservation Rank	
		Federal	NH	Global	State
Vertebrate species (For more information, contact Kim Tuttle, NH F&G at 271-6544)					
American Marten (<i>Martes americana</i>)	2001	--	T	G5	S2
Smooth Green Snake (<i>Opheodrys vernalis</i>)	2011	--	SC	G5	S3
Natural Community					
Montane - subalpine circumneutral cliff	1999	--	--	--	S2
Montane - subalpine acidic cliff	1999	--	--	--	S4
Hemlock - spruce - northern hardwood forest	2006	--	--	--	S3
Subalpine cold-air talus shrubland	1999	--	--	--	S1



NEW HAMPSHIRE NATURAL HERITAGE BUREAU

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Plant species		Federal	NH	Global	State
mountain sweet-cicely (<i>Osmorhiza berteroi</i>)	2003	--	B	G5	S1
dwarf birch (<i>Betula minor</i>)	1999	--	T	G4	S2
Hornemann's willow-herb (<i>Epilobium hornemannii</i>)	1999	--	T	G5	S2
northern arrowhead (<i>Sagittaria cuneata</i>)	1904	--	B	G5	S1
ovoid spikeweed (<i>Elaecharis ovata</i>)	1943	--	E	G5	SH
Auricled Twayblade (<i>Neottia auriculata</i>)	1908	--	B	G3	S1
Broad-leaved Twayblade (<i>Neottia convallarioides</i>)	2005	--	T	G5	S2
green adder's-mouth (<i>Malaxis unifolia</i>)	1893	--	T	G5	S2
fragrant wood fern (<i>Dryopteris fragrans</i>)	2002	--	T	G5	S2

Listing codes: T = Threatened, E = Endangered, SC = Special Concern
 Rank prefix: G = Global, S = State, T = Global or state rank for a sub-species or variety (taxon)
 Rank suffix: 1-5 = Most (1) to least (5) imperiled. "--", U, NR = Not ranked. B = Breeding population, N = Non-breeding, H = Historical, X = Extirpated.

Many of the above communities and species are located in Montane forest (above 2,500 feet in elevation) and are protected by the RFC's policy of no commercial timber harvesting in these areas. It is highly likely that other species may exist but have not been documented due to the cost and time required to thoroughly inspect the RCF. With budget and staffing restraints the NHB is limited and clearly behind on species documentation, particularly of the North Country.

WILDLIFE

A portion Wildlife information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post forest inventory.

Overall conditions for wildlife and fluctuations of wildlife populations on the Randolph Community Forest are similar to those found in northern New Hampshire. Conditions for wildlife are similar to the original assessment completed in 2003, for the first Stewardship Plan. American pine martin (*Martes Americana*) tracks are seen regularly on the RCF. Canada lynx (*Lynx Canadensis*) is suspected to continue to use the RCF. Signs of bobcat (*Lynx rufus*) continue to be seen on the RCF. A significant songbird site is associated with the wetland on the Farrar Tract. To date over 100 different songbirds have been observed in the wetland in the early spring as migrating birds pass through on their way to nesting grounds further north.

The decline in the moose population on the RCF continued, as well as for all of New Hampshire. Declines have been caused by lower health of adults and direct mortality of juvenile moose resulting from winter tick infestations. Over the last couple of years, the moose population seems to have stabilized slightly. A noticeable increase in wild turkey (*Meleagris gallopavo*) presence has occurred on the RCF, probably in large part to the increase in wildlife opening creation and mowing during the past ten years.

Over 60 species of land mammals, over 70 birds, nearly 20 reptiles, over 20 amphibians, and at least 16,000 insects inhabit the region, most of these occurring regularly (as opposed to passing through the area during migration). The diversity of wildlife species attracts residents and visitors for hunting, viewing, and educational purposes. During our inventories of wildlife and wildlife habitat throughout the Randolph Community Forest we found ample evidence of moose, bear, deer, coyote, fox, ruffed grouse, diverse songbirds, raptors, frogs (wood, green, and leopard), spotted salamanders, and many different small mammals. The diversity of habitat along with a large undeveloped space allows for these species to thrive.

During fieldwork throughout the RCF, the following characteristics were noted and examined to assess the value of wildlife habitat:

1. Structure – shape, height, leaf density throughout all levels of forest canopy: grass, herb, shrub, and tree vertical layers
2. Patchiness – a mosaic effect throughout the Forest that gives, for example, wildlife a sunny patch of berries right in the middle of a dense softwood stand.
3. Edge – The junction between two different communities is one of the most diverse and intensely utilized places in a forest. On these edges, wildlife from each community can be found together, along with those edge-preferred species.
4. Size – Certain species of wildlife need large areas of unbroken terrain. For example, oven birds often build their nests deep in these extensive forests. In addition large mammals, such as bear, bull moose, and lynx need a large home range to support themselves.
5. Special Features – these include open water, cavity trees, cliff outcrops, and higher elevations.

In many areas of the RCF all five characteristics were found, some in abundance. For example, the large acreage of the Forest along with its connectivity to the White Mountain National Forest to the north and south, could support many different wildlife species requiring large territories. In addition, many different wildlife species were noted in edge habitat along roads, log landings and openings. Furthermore, during songbird breeding, several species of warblers, sparrows, wrens, and thrush, were noted at different levels in the canopy throughout the Forest. Habitats of special interest to the Forest include open space, dense softwood stands, regenerating aspen stands, open water wetlands, vernal pools, and mast producing trees.

Permanent Openings

Permanent openings, dominated by grasses, forbs, brambles, or fruiting shrubs, provide necessary habitat for about 22% of New England's wildlife species, and seasonally important habitat to nearly 70% of species. The eastern bluebird and eastern cottontail are two examples of species of concern in New Hampshire, which rely on retaining permanent open areas. Permanent openings in general also have the advantage of creating an edge habitat. Wherever an open area meets the forest the area of transition will attract the largest diversity of species, both plant and animal. Generally, there will be species adapted to permanent openings, those adapted to forested habitat, and those that specialize in the transition zone area and frequent these edge habitats.

Of the 89.9 acres of open habitat found throughout the RCF, two places stood out as unique and important wildlife openings in the forest. The first involved a grassland containing approximately 6 acres. This unique grassland was found along the farthest portions of *Softwood Road* (Compartment 2B, Stand 5-32 border). Refer to Map 2. Several bird species were heard including flickers, phoebes, chickadees, robins, and winter wrens. The transitional elderberry and brambles along with mature hardwood stands adjacent to the grassy opening provide soft and hard mast as an additional attractant to a variety of wildlife species. A second opening of special interest was along the *Pond of Safety Road* (Compartment 2B, Stand 10), which contains approximately 11.3 acres of opening. The uniqueness of this site is especially of interest because

it is adjacent to a stand of dense softwood and also the Stag Hollow Brook. The diversity of open, transition, softwood, riparian zone, and running water will continue to attract a number of wildlife species.



Unique grassland habitat found on the RCF

Dense Softwood

Dense softwood stands are other areas of importance throughout the RCF. They provide shelter to animals from harsh winter weather by reducing snow accumulation and wind speeds, while allowing access to food supplies and escape from predators. Historically there were large tracts of softwood stands and deer wintering areas (also called deer yards). Today, however, many of the dense softwood stands scattered throughout the Randolph Community Forest are quite small in size (1 to 15 acres). There are a few larger softwood areas ranging from 30 to 60 acres in size. Many of the softwood stands are associated with watercourses and riparian habitat as shown on Map 2. Moreover, some of the larger softwood stands are found above the 2500-foot elevation mark. During site visits evidence of deer and moose were found in many of the softwood stands. Previous logging activities have transitioned these softwood stands into hardwood stands of varying age classes. Even though deer may not use some of the smaller softwood stands in the winter, many other smaller mammals and birds rely on them.



A small softwood stand found throughout a mature hardwood stand. During field work signs of bear, deer, moose, woodpeckers, and snowshoe hare were found in this stand.

Aspen Stands

Aspen stands are the preferred habitat for several wildlife species including ruffed grouse, woodcock, and beaver. Aspen are an early successional species. This means that they are one of the first trees to grow after an area has been cleared by fire or logged to expose the soil and allow direct sunlight to penetrate to the forest floor. During field studies of the RCF abundant Aspen stands were found since the area was heavily logged in the past. There was abundant ruffed grouse sign throughout the year in part due to the aspen stands. Because aspen die off as the forest matures, natural disturbances or clear cuts are necessary to propagate the species. Future management activities will attempt to maintain the presence of aspen stands and expand/increase the presence of aspen where possible.

Mast Trees

Mast refers to nuts, seeds, and fruits of woody plants that provide food for wildlife. “Hard mast” refers to nuts and seeds; “soft mast” refers to fruits and berries. High levels of fat and protein in mast contribute to fat stores critical for migration or hibernation. In the RCF the predominant hard mast species is American beech. Soft mast species are more diverse and include black cherry, pin cherry, choke cherry, mountain ash, shadbush, brambles (black berries and raspberries), and high bush cranberry. During field inventories of the RCF several species of hard and soft mast were found scattered throughout the entire forest. Based on the diversity of wildlife, and ample mast producers, there does not appear to be any shortage at this point. A beech mast area was identified in stand 2A12 while timber marking for the timber sale known as “First Sale” 2017. This area contained a significant number of bear clawed beech. Marking in this area was adjusted to release beech to provide growing space for crown expansion to increase the amount of beech nuts available during abundant mast years.



Abundant bear claw marks on a beech indicates repeated beech nut crops

Vernal Pools

Vernal pools are a distinctive and unique type of wetland which merit a discussion of their own. A vernal pool is described as a temporary body of water which provides essential breeding habitat for certain amphibians and invertebrates. These unique wetlands typically cycle annually from flooded to dry. Vernal pools vary in size, shape, and location, and are valuable wildlife habitat because of the wide range of species that use them including turtles, frogs, salamanders, fairy shrimp, clam shrimp, fingernail clams, caddis flies, dragon fly larva, and other aquatic insects. Vernal pools provide a safer breeding ground for these species than permanent waters, because there are no fish to eat the eggs or larvae. Vernal pools also function as watering holes for many wildlife species.



Vernal Pool found of the RCF

Seven vernal pools were found and documented in the Forest and are described in the table below. Undoubtedly, there are many more pools throughout the RCF, and they will be continually documented and updated as they are discovered. Four of the vernal pools (Nos. 1, 3, 4, 5, 7) were found along the road or in an old gravel pit and were probably formed through the construction of the road and/or removal of gravel from the area. Vernal pool number 2 is more typical of a woodland vernal pool with good canopy closure all around. It is interesting to compare the two vernal pools on Vernal Pool Road: number 1 being near a gravel pit and on the side of the road; and number 2 being in a wooded area off any roads or trails. Both vernal pools had a good diversity of amphibian and aquatic insect life, but the smaller, roadside vernal pool had a higher density of species.

Table 5: Summary of Vernal Pools Found During 2003 Field Season

Vernal Pool Number	Location (GPS coordinates)	Size (feet)	Species Discovered (* = NH obligate vernal pool species)	Road Name
1	None taken – at gravel pit on Vernal Pool Road	50 x 25	*wood frog *spotted salamander green frog caddis fly larvae	Vernal Pool Rd.
2	N 44° 24.638’ W 071° 22.890’	300 x 70	*wood frog *spotted salamander American toad caddis fly larvae	Vernal Pool Rd.
3	N 44.41915° W 071.37936°	5 x 5	*wood frog green frog	Jeep Rd.
4	N 44° 24.035’ W 071° 20.791’	50 x 20	*wood frog *spotted salamander	Pond Safety Rd.
5	N 44° 23.523’ W 071° 22.187	30 x 25	*wood frog green frog	Softwood Rd.
6	N 44.41075° W 071.37634°	25 x 15	*wood frog *spotted salamander green frog caddis fly larvae	Jeep Rd.
7	None taken	20 x 6	*wood frog	Water Wheel Rd.

Summary of Wildlife Habitat

To summarize wildlife habitat, the size of the RCF and its proximity to large contiguous open space, offer distinct and unique opportunities for wildlife monitoring, conservation, and wildlife habitat management. There are opportunities to continue to work towards connecting the RCF to the White Mountain National Forest south of U.S. Highway #2.

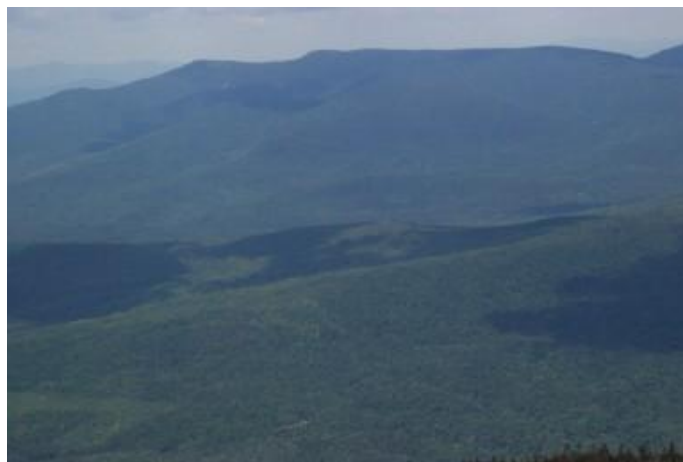
Today, one of the greatest threats to wildlife species is the loss of habitat. The Randolph Community Forest and the adjacent White Mountain National Forest and Gorham Town Forest have abundant wildlife habitat at this time. This gives people an opportunity to retain what they

do have for diversity throughout the region rather than having to attempt to “fix” an area which has been fragmented by development and associated habitat loss.

Visual Resources

The Visual Resources information presented here has been copied from the first Multiple Resource Management Plan (MRMP) dated 2003. Compartment designations are not being carried forward as a new forest type map was created post forest inventory.

The Randolph Community Forest is in a visually sensitive area. It is within the viewshed of U. S. Highway #2 as a foreground, middle-ground, and background view. Most of the forest can be seen from the Presidential Range above tree line where thousands of hikers have a superior, middle-ground to back-ground view of it. Stag Hollow Road, Randolph Hill Road, the State snowmobile trail system, and several hiking trails provide a fore-ground view. The public is very concerned about the appearance of this landscape. They know it as forest land and that is what they expect to see when they view it.



View of the Randolph Community Forest from Nowell Ridge to the south. There are scenic views both towards and from the RCF.

Presently, what people view is a naturally appearing landscape when observed as a background view, especially in the summer when there is less contrast between age classes of stands. Most of the past cutting activity on the forest maintained a high canopy appearance. Some of the harvesting associated with the ice storm is noticeable but it is subordinate to the overall landscape. An exception to this is a spot called “the scar” which is a skid road at the base of Mt. Crescent.

Timber harvesting activities are seen and are very noticeable when seen from the roads, snowmobile trails, and hiking trails that are within the forest. Also observed are some of the ice storm damaged broken trees. Another exception to the naturally appearing landscape is harvesting that has recently taken place on private land abutting the forest. These rectangular cuts catch the eye first.

Future timber sales will consider the sensitive viewshed in which they are taking place. Timber harvesting activities may be noticeable, but they will be subordinate to the surrounding landscape by keeping group cuts, patch cuts and clear cuts proportionally small in size, flowing with the landscape, and natural in appearance. No harvesting will take place during April through June to avoid rutting and removing the bark from trees. Thinnings or partial cuts will be implemented during July-September and winter months to avoid removing bark from trees. Other practices listed in the Aesthetics Section of *Good Forestry in the Granite State* will be followed to protect the visual resource.

ACTION PLANS FOR THE RANDOLPH COMMUNITY FOREST

#1 – EDUCATIONAL PROJECTS

Action A – Continue to present at least one slide show and field tour per year to the public (*Started in 2003*). Ideas for slide shows include, but are not limited to:

- Annual ‘Meet Your Community Forest Management Team’ event
- Winter presentation or workshop on any component of the Forest
- Invite specialists to give presentations on a specific component of the forest (examples include geology, wildlife ecology, soil science)

Action B – Post all educational slide shows and/or handouts on the website for public access

#2 – GIS MAPPING

Action A – Continue to create, update, and maintain database. (*Ongoing/Annually*)

- New data layers
- Additional field inventory data
- Update of previous actions and implementation such as forest stand prescription completion, culvert replacements, wildlife opening completed, etc.

Action B – Continue to update the portable hard drive at the Town Office.

Action C – Annually produce and distribute at least one full-sized plot displaying various RCF features, areas of interest, and changes within the Forest.

#3 - WILDLIFE HABITAT IMPROVEMENTS

Wildlife Habitat Improvements

Action A – Maintain the following openings through bi-annual mowing:

<u>Compartment</u>	<u>Stand</u>	<u>Compartment</u>	<u>Stand</u>
1A	16	2B	37
2B	41	2B	42
2B	49	4B	27
4B	28		

Action B – Create additional wildlife openings in Compartment 3A, stand 11, 6 acres and Compartment 3B, stand 14, 6 acres. A wildlife opening is planned for the Potter

tract, the size and location are to be determined in consultation with New Hampshire Fish and Game. The openings would be created by clearing the trees off of them through planned timber sales. After these openings are established, mow them bi- annually.

Action C – Identify additional water crossings to be replaced to improve aquatic organism passage. Potential locations include undersized culverts located on the Deer Fly Road and Jintown Road.

Action D – Work with New Hampshire Fish and Game for the use of the Randolph Community Forest for wildlife studies and research. Other items to work with New Hampshire Fish and Game on during the third Stewardship Plan include:

- Identify wildlife habitat improvement opportunities
- Develop update to date information for Canadian Lynx and American martin as the RCF provides critical north/south connectivity for both species.
- Work collaboratively to develop techniques to manage the RCF to mediate the effects of climate change.
- Work collaboratively to develop techniques to manage the RCF to increase the softwood species component.
- Work collaboratively to develop techniques to manage the RCF to maintain the mast producing tree species.

#4 – TIMBER SALES:

Action A - The following timber sale projects are planned to be conducted over the next 10 years.

Compartment	Stands	Acres	Prescription (% acres to be treated)*	Year Planned**
1A	1, 2, 3, 4, 5, 6	272.0	Shelterwood (40%)/ Patch cuts (15%)/ Overstory Removal (15%)/ Retention (30%)	2024-2034
1B	1, 2, 3, 4, 5, 6, 7, 9	216.0	Shelterwood (20%)/ Patch cuts (20%)/ Overstory Removal (30%)/ Retention (30%)	2024-2034
2B	6, 16, 20, 34	428.7	Shelterwood (55%)/ Patch cuts (10%)/ Overstory Removal (20%)/ Retention (15%)	2024-2034
3A	2	72.3	Shelterwood (60%)/ Patch cuts (5%)/ Overstory Removal (10%)/ Retention	2024-2034

			(25%)	
3B	1, 2, 3, 4, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 25	838.4	Shelterwood (40%)/ Patch cuts (10%)/ Overstory Removal (20%)/ Retention (30%)	2024-2034
4B	1, 3, 4, 5A, 5B, 6, 7, 8, 9, 10, 12, 13, 14, 15	696.7	Shelterwood (25%)/ Patch cuts (25%)/ Overstory Removal (20%)/ Retention (30%)	2024-2034
Potter	1, 2, 16, 18	124.2	Shelterwood (20%)/ Patch cuts (25%)/ Overstory Removal (10%)/ Retention (45%)	2024-2034
* Prescriptions derived using recommendations from Dirt to Trees to Wildlife. Using Dirt to Trees to Wildlife prescriptions were developed primarily based on soil types, this helps determine the species and growth potential of each forested stand. With growth potential being maximized, prescriptions can be tailored to benefit the most species of mammals, birds, reptiles, and amphibians. See Dirt to Trees to Wildlife report in Appendix.				

#5 – ROAD NETWORK BRUSH HOG MOWING

Action A – Brush hog the entire road system on a three-year rotation, i.e., one third of the roads per year, including ditch lines where appropriate

Action B – Install a gate across High Road just past Hunters Pass. The gate can be opened or closed based on the road conditions and judgment of the Randolph Forest Commission. Work with the snow machine club to repair and restore the upper portion of the High Road for winter use.

Action C – Move the Bowman Gate up to the junction from the start of the road to the junction of Water Wheel Road and Walker Road.

#6 – CULVERT AND DITCHES

Action A – Enhance fish passage, aquatic connectivity, and future storm erosion by upgrading large culverts

- Evaluate potential for bridge crossings on the Deerfly and Jimtown Roads.
- Conduct a culvert inventory to schedule the replacement of culverts to increase culvert size to be better prepared for large rain events.
- Add new culverts where deemed needed
- Apply for grant funding to help restore the stream system

Action B - Reconfigure water bars as needed on an annual basis

- Construct new water bars where deemed necessary

- Seed and loam or riprap where applicable

Action D - Inspect and evaluate bridges annually, particularly those on the North South Road and the West East Road off the Jim Town Road. (Repair or replace as needed for access, road maintenance, and future timber harvesting).

Action E - Evaluate abandoning some roads or blocking wheeled traffic

Action F - Seed and mulch adjacent slopes where necessary to prevent erosion and/or sedimentation in flowages. (*Annually*)

7 – BOUNDARY LINE AND TRANSECT MAINTENANCE

Action A – Cut brush and saplings as needed along the transect network.

Action B – Repaint and mark the Forest boundary lines every 10 years or as needed.

Action C—Survey, monument corners and paint the boundary around recently acquired properties.

#8 – INTERPRETIVE TRAIL

Action A – Create an interpretive trail with proper signage plats either along existing sections of trail or an entirely new trail.

Action B – Create a River Walk Trail on the Meiklejohn property.

#9 - APPLE TREE RELEASE AND PRUNING

Action A – Monitor released apple trees to gauge response.

Action B - Identify potential areas to plant additional apple trees.

10 – INTEGRATED PEST MANAGEMENT

Action A –Reduce the spread of Japanese knotweed by cutting the patches at ground level in June, followed by another cut in early August and a herbicide application to the tops of cut stems. Repeat this process the following summer on any surviving stems.

Action B –Stay informed about the spread of the emerald ash borer. Annual examination OF stands in Compartments 1A, 1B and 2B for die-back or mortality. If the EAB is found on or near the forest, consult with the State of New Hampshire

Forest, and Lands entomologists for further actions to take.

11 – FARRAR TRACT

Action A – Release apple trees to provide food for wildlife

Action B – Continue to be involved with the proposed wildlife crossing

Action C – Work to preserve the wildlife habitat and water quality of the Israel’s River

12 – RECREATION

Action A – Maintain trail markers and signage on the current recreation trail network.

Action B – Coordinate with the Randolph Mountain Club as needed for trail maintenance.

Action C – Coordinate with the Randolph Mountain Club as needed when forest management activities are scheduled to occur adjacent to recreation trails.

Action D – Evaluate new recreation opportunities on a case-by-case basis to determine if the activity is compliant with the conservation easement, compatible with the values of the Randolph Community, and dovetails with the spirit in which the Randolph Community Forest was created.

Action E – Coordinate with Waubek-Methna Snowmobile Club and New Hampshire Trails Bureau Region 1 as needed for trail maintenance and when forest management activities are scheduled to occur adjacent to snowmobile trails.

Action F – Continue to gather observation data for the “Birding Hotspot” on the Farrar Tract.

FUTURE OPPORTUNITIES FOR THE RANDOLPH COMMUNITY FOREST

#1 – WILDLIFE TRAVEL CORRIDORS AND WILDLIFE CONNECTIVITY

Opportunity A - Analyze potential wildlife travel corridors in relationship to linking at a landscape scale utilizing GIS and further fieldwork.

Opportunity B - Coordinate with NH Fish & Game, Gorham Town Forest, White Mountain National Forest, US Fish and Wildlife Service, New Hampshire Department of Transportation, and New Hampshire Audubon.

#2 – WILDLIFE MONITORING AND INCREASE INVENTORY OPPORTUNITIES

Opportunity A – Continue to advertise and seek research projects utilizing the transect network within the Forest and WMNF Pond of Safety permanent transects.

Opportunity B - Organize and train volunteers to assist with track counts and documentation.

Opportunity C –Should future songbird studies be conducted, work with WMNF staff to ensure uniform, standard identification and codes be implemented.

#3 – GRANT WRITING

Opportunity A - Submit a minimum of two proposals seeking funding on an annual basis. Examples of proposal submissions could include, but not be limited to:

- Wildlife habitat management activities
- Aquatic connectivity- specifically perched culverts
- Research projects within the Forest
- Education and workshop grants
- Recreational Trail development, improvements, and links

#4 – RARE SPECIES INVENTORY AND MONITORING

Opportunity A - Expand fieldwork focused on co-occurrences of natural resources within the RCF

- Analyze GIS data such as hydrology, geology, soils, etc.
- Identify and locate talus sites
- Identify and locate areas with higher pH readings (water and soil)

#5 – INVASIVE SPECIES MONITORING AND CONTROL

Opportunity A - Continue to document invasive species throughout the RCF

- Develop an invasive plant eradication program through volunteers
- Consult and partner with New England Wildflower Society and/or UNH Cooperative Extension

#6 – RESEARCH PROJECTS WITHIN THE FOREST

Opportunity A - Determine research possibilities, funding opportunities, Public interest, and Conservation Easement goals.

#7 – RIPARIAN BUFFER ALONG THE ISREAL’S RIVERS

Opportunity A –Build on the previous wetland study done for this area by analysis of the need for and/or benefits of improving the buffer along the RCF section of the Israel’s Riverbanks.

#8 – WILDLIFE HABITAT IMPROVEMENT

Opportunity A –Encourage the growth of softwood to create more winter habitat for wildlife by regenerating softwoods or doing timber stand improvement where feasible.

MAPS