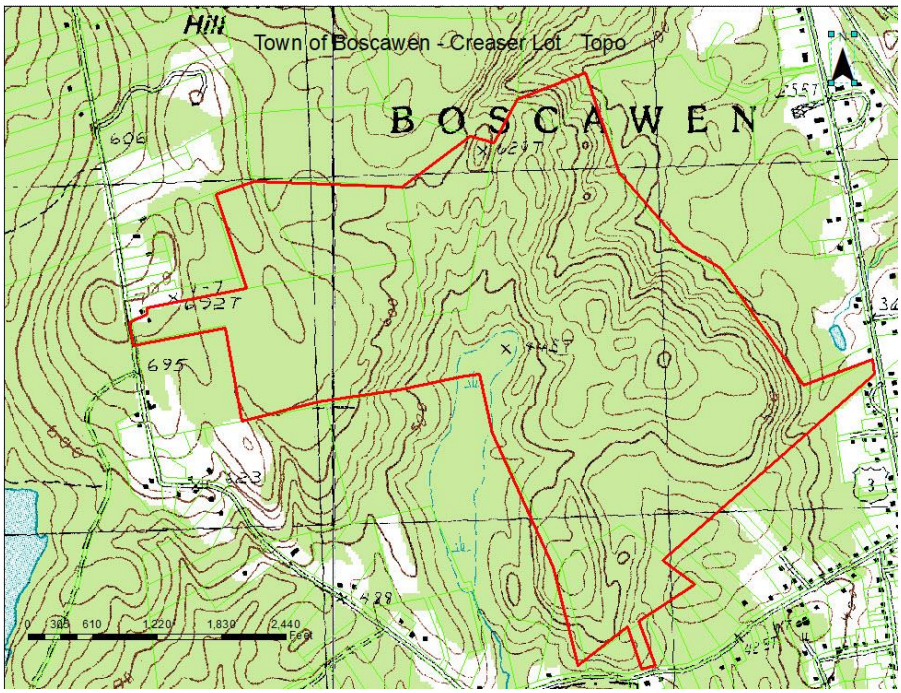
Town of Boscawen, NH

Forest Inventory and Management Plan for Creaser Lot



Prepared for Boscawen Conservation Commission

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Introduction and Purpose

The Town of Boscawen's "Creaser Lot" refers to five contiguous tracts of undeveloped forest land owned by the Town of Boscawen located within the area of town bounded by Queen Street and Route's 3 and 4. The five tracts contain approximately 376 acres based on tax map acreage, of which 360 acres is upland forest and 16 acres is forested wetland or open marsh.

The town has entrusted the Boscawen Conservation Commission (BCC) with the responsibility for making recommendations on its use and management for forestry, wildlife habitat, and outdoor recreation. Little is known about the condition or value of the timber resource on this property, or the extent of its public recreational use or use by a diversity of wildlife habitat.

The BCC has engaged Innovative Natural Resource Solutions LLC to undertake a comprehensive inventory of timber resources in order to better ascertain the quality, quantity and value of this resource. This data will be used to prepare a stand map suitable for use in potential future forest management, identifying major forest types, corners and boundaries, wetlands, roads and trails and other important land features. This information will then be used to develop a set of recommended forest management practices to guide the town on which portions of the property 1) may be suitable for potential future forest/wildlife habitat management and development of outdoor recreation, 2) have unique and important wildlife habitat features, and/or 3) unique and important ecological values. These recommendations can then help the BCC and Town of Boscawen determine whether some portion or all the property may be suitable for designation as a Town Forest or some form of permanent protection as conservation land.

This report presents the results of the forest resource inventory and management recommendations.

History of Town Acquisition and Land Use

In 2007, the Town of Boscawen acquired 329.9 acres of woodland, known locally as the Creaser Lot, financing the $625,000 purchase with $375,000 in funds from the Town Conservation Fund and a special town appropriation of $250,000 approved at the 2007 town meeting. The tax map and lots are:

Map 83 Lot 7	296.1 acres	
Map 83 Lot 31	20.8 acres	
Map 83 Lot 42	13.0 acres	
	---	(NOTE: this acreage is at odds with acreage listed in 2007 town meeting
TOTAL	329.9 acres	warrant, article 18)

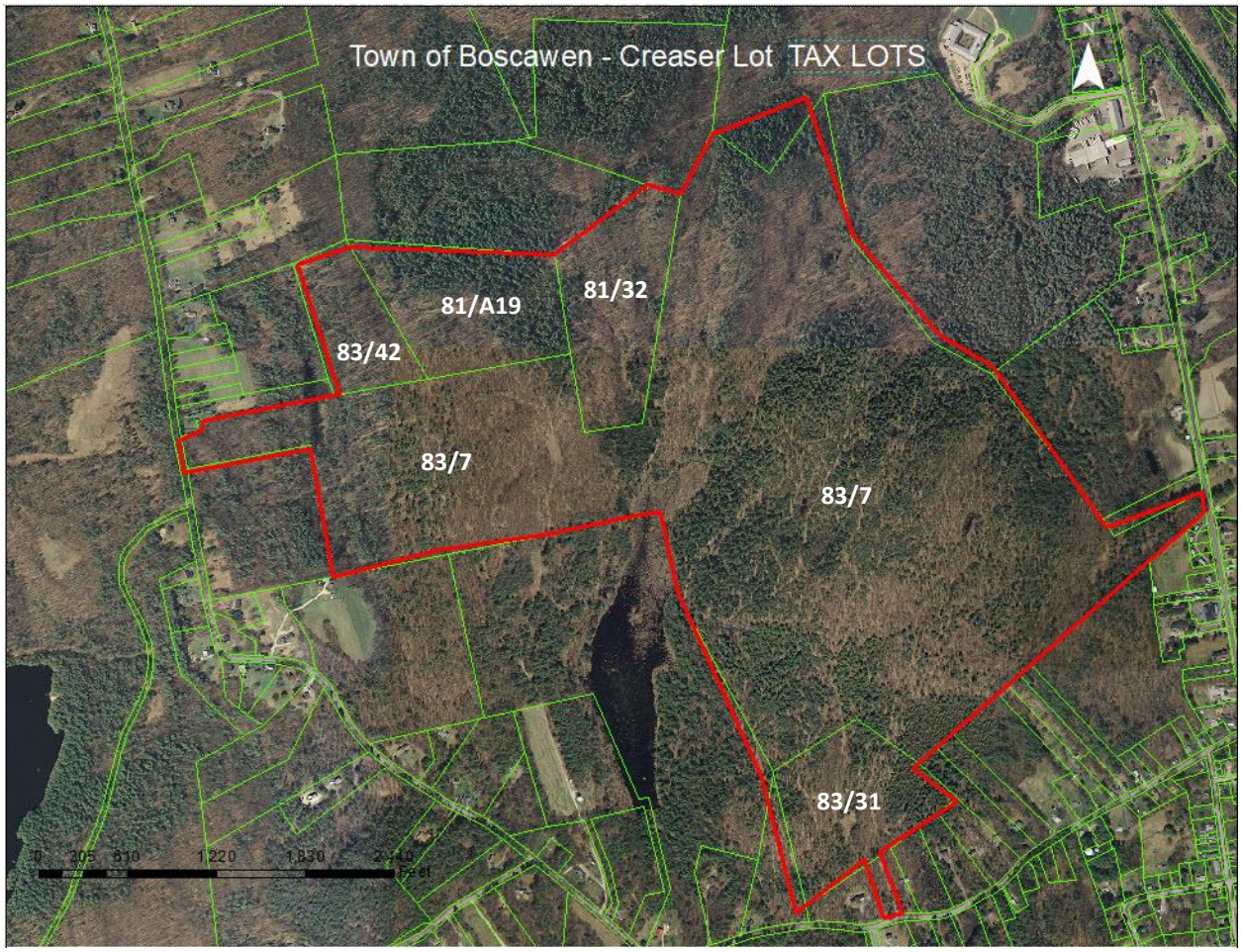
These lands abut two other woodland parcels that have been owned by the Town of Boscawen for an indeterminate length of time, likely acquired as tax deeded properties many decades ago. The map and tax lots of these parcels are:

Map 81 Lot 19A	25.0 acres
Map 81 Lot 32	21.0 acres

TOTAL	46.0 acres

The map below shows the location of the five tracts, which total 375.9 acres, based on the town's tax map data.

Figure 1. Town of Boscawen tax map boundaries showing five lots that comprise Creaser Lot. Red line indicates boundaries based on GPS confirmation of 23 of 31 corners.



These lands were all cleared for agriculture during the late 18th and 19th centuries, as evidenced by extensive stone walls throughout. Some portions were cropped, while sloping, ledgy and wet areas either remained forestland (but were periodically harvested) or were pastured for sheep or cows.

Following agricultural abandonment in the late 19th century, nearly the entire tract returned to forestland. It has been harvested extensively since that time, with the most recent harvests taking place in 1986 and from 2000-2005. The 2000-2005 harvest removed nearly 1.4 million board feet of sawtimber (mostly pine and red oak), 6,300 tons of pulpwood and 330 cords of firewood for a total harvest of nearly 5,400 cords of wood (all species and products) or 18-21 cords removed per acre, a very heavy harvest of approximately 50%+ of stocking at that time. Generally higher quality wood and products were removed during this harvest, leaving lesser quality and smaller diameter trees to become the future forest. Information on the 1986 harvest is not readily available.

Today the forest is comprised of even-aged and two-aged stands with overstory trees approximately 60 to 100 years of age and a second age cohort of younger (15-30 years old) forest following the extensive harvesting during the 2000's. Older stands and individual trees (some 100-150 years of age) are generally found on steep, ledgy or wet ground that may have been difficult to access during prior harvests or stands composed of lesser value species such as hemlock that were largely untouched.

Description of Land

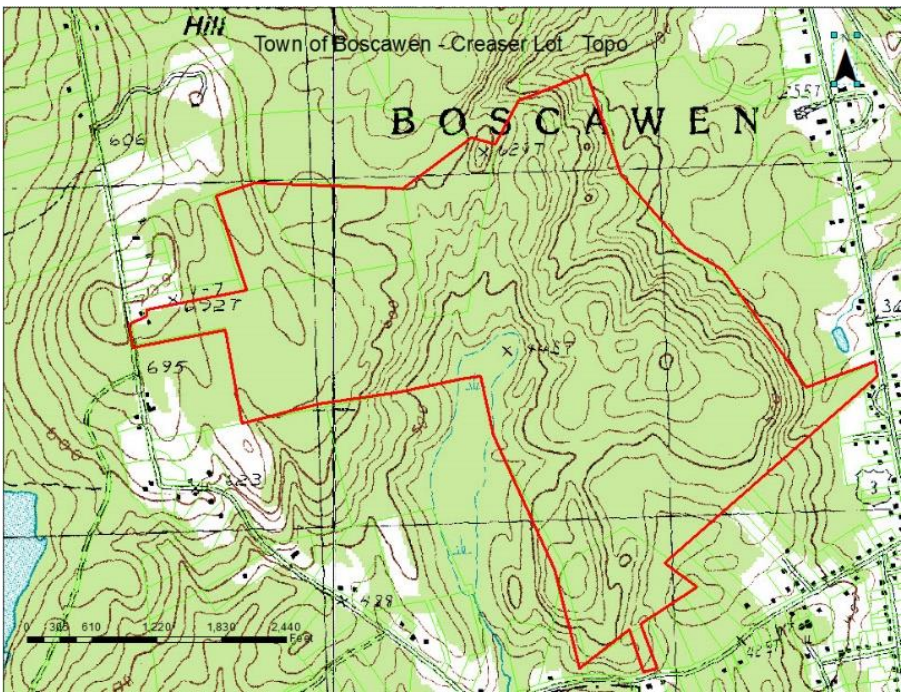
The Creaser Lot covers a wide elevational transect ranging from 360 to about 700 feet above sea level, with the low point on Route 3 and the high point where the tract fronts Upper Queen St. There is extensive acreage in steep and ledgy terrain especially along the eastern portion of the tract facing Route 3, with many rock outcrops. Figure 2 shows topography.

There are several low forested wetland pockets that are delineated on the map in Figure 2. This map also shows open marsh that is the northern extension of a large wetland marsh complex that extends onto adjacent privately-owned land along the southern boundary. This is a high value wetland complex with an active heron rookery and beaver colony.

There are numerous vernal pools located throughout the property, especially in ledgy areas where water has collected in bedrock depressions. These "perched" wetlands and pools have unique plant communities and include such uncommon tree species at black tupelo (gum) and black ash.

There are former timber harvest roads throughout the Creaser Lot, including some that have been maintained for active recreational use (e.g. snowmobiling). Many secondary skid trails have regrown to young forest but are easily discernable throughout. There are boundary and interior stone walls throughout the property, though no attempt was made to ground truth these for mapping purposes.

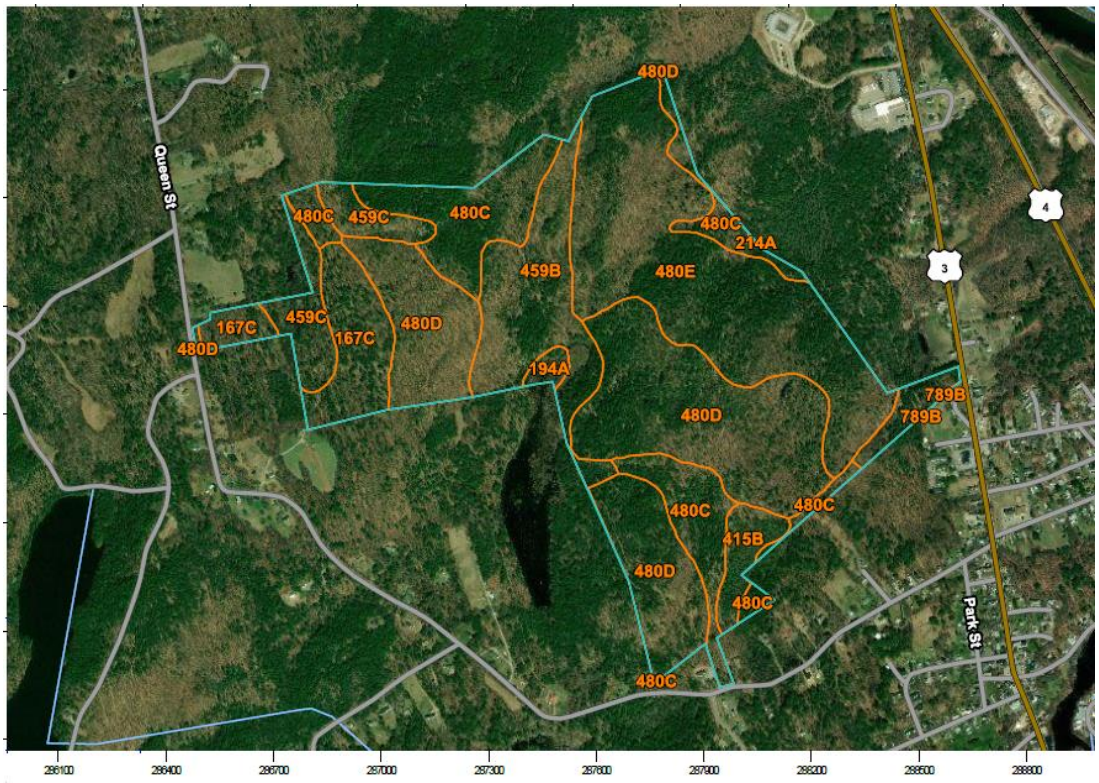
Figure 2. Topography of Creaser Lot. 20' contour intervals. Source: USGS.



Site Quality/Soils

Soil types are the ultimate determinant of what types of forest tree species will grow, how productive the land is (site quality) and how rapidly trees grow to commercial sizes. The Creaser Lot is characterized by a range of soil types illustrated in Figure 3.

Figure 3. Soils map of Creaser Lot (2014 USDA NRCS soils survey).



For understanding forest productivity, the USDA Natural Resource Conservation Service has grouped forest soils into Important Forest Soil Groupings, summarized in Table 1. The entire acreage of the Creaser Lot is comprised of highly productive soil groupings: IA, IB, and IIA.

Table 1. Important Forest Soil Groupings of Creaser Lot (Source: USDA NRCS 2014 soil survey)

Soil Type	Important Forest Soil Group
167C - Canterbury fine sandy loam, 15 to 25 % slopes, very stony	IA
194A - Catden mucky peat, 0 to 1 % slopes, ponded	
214A - Naumberg sand, 0 to 5 % slope	IIA
415B - Moosilauke fine sandy loam, 3 to 8 % slopes, very stony	IA
459B - Skerry variant fine sandy loam, 3 to 8 % slope, very stony	IA
459C - Skerry variant fine sandy loam, 8 to 15 % slope, very stony	IA
480C - Tunbridge variant-Woodstock-Henniker complex, 8 to 15 % slopes, very stony	IB
480D - Tunbridge variant-Woodstock-Henniker complex, 15 to 25 % slopes, very stony	IB
480E - Tunbridge variant-Woodstock-Henniker complex, 25 to 60 % slopes, very stony	IIA
789B - Not classified	

Group IA consists of the deeper, loamy, moderately well-drained and well-drained soils. Generally, these soils are more fertile and have the most favorable soil-moisture conditions. The soils in this group are well-suited for growing high-quality hardwood veneer and sawtimber, especially northern red oak. Softwoods are usually less abundant and are best managed as a minor component of predominantly hardwood stands. Where softwoods are present, such as white pine, they will be difficult to maintain over time.

Group IB generally consists of soils that are moderately well-drained and well-drained, sandy or loamy-over-sandy, and slightly less fertile than those in group 1A. Soil moisture is adequate for good tree growth but may not be quite as abundant as in group 1A. Group IB soils are well-suited for growing less-nutrient-and-moisture-demanding hardwoods such as northern red oak. Softwoods generally are scarce to moderately abundant and managed in groups or as part of a mixed stand. Successful regeneration of softwoods and the establishment of softwood plantations are dependent upon intensive management.

Group IIA consists of diverse soils and includes many of the soils that are in groups IA and IB. The soils in IIA, however, have limitations such as steep slopes, bedrock outcrops, erodibility, surface boulders, and extreme stoniness. Productivity of these soils isn't greatly affected by those limitations, but management activities such as thinning, and harvesting are more difficult and more costly.

It will be important in any forest management activities to ensure that silvicultural objectives are consistent with suitability and adaptability of soil types based on these groupings.

Forest Types, Natural Communities and Wildlife Habitat Diversity

The forest types of the Creaser Lot are typical of the mixed **white pine/hemlock/oak forests** of the Merrimack River Valley of central New Hampshire. Historically (18th century pre-settlement) white pine may not have been as prevalent in the Creaser Lot, but its relatively high percentage of composition today may be attributed to past land use history. Former agricultural fields abandoned as pasture in the mid/late 1800's often seeded into white pine. Much of this "old field pine" was cut during the 1900's, but white pine stocking remains high today in certain stands. Together with red oak, hemlock, red maple, and white oak, these five species comprise 80% percent of sawtimber stocking, as will be discussed in more detail later in this report. Black oak is prevalent in drier more ledgy sections of the Creaser Lot. Red maple, black birch and some white ash are often found in association with this forest type in recently disturbed areas, such as from past timber harvesting or wind blow events. An exemplary **red oak-black birch wooded talus community** can be found along the rocky ledges facing east toward Route 3.

Other forest types found on the Creaser Lot include the **northern hardwood type with beech and minor presence of sugar maple and yellow birch**. This is a very minor component in the ownership. Wetland pockets include some species unique to these habitats, such as black tupelo (gum) and black ash.

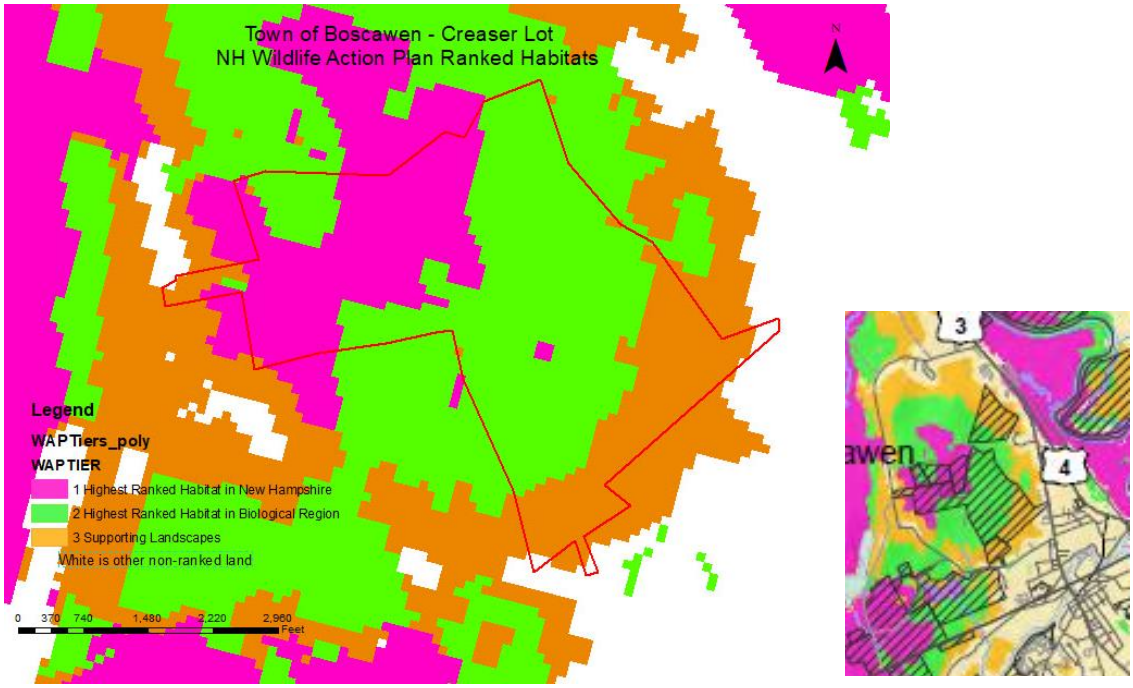
Sadly, white and black ash are both showing evidence of dieback and mortality due to the recently introduced Emerald Ash Borer, which has become broadly established through the Merrimack Valley. Mortality is expected to be nearly 100% within the next several years.

The New Hampshire Natural Heritage Bureau maintains a database of threatened or rare plants and plant communities. A query of the database did not indicate any known records for rare plants or plant

communities on the Creaser Lot. This does not mean they are not present, but simply that no official records exist in the vicinity of this ownership.

The Creaser Lot is characterized by diverse habitat for a wide range of game and non-game wildlife species. The combination of upland oak forest, dense softwood stands of hemlock and pine, wetlands and vernal pools throughout and diverse topography make this tract rich in habitat values. The 2015 NH Wildlife Action Plan developed by the NH Fish and Game Department has mapped the entire state for its importance for wildlife habitat, using a variety of criteria to score lands based upon their importance. Figure 4 shows much of the area of the Creaser Lot as the highest ranked habitat importance in New Hampshire (magenta and green color). This owes primarily to the large unfragmented block and its proximity to unfragmented and undeveloped lands.

Figure 4. Mapping of high-ranking wildlife habitat from 2015 NH Wildlife Action Plan. Creaser Lot boundary shown in red. Inset shows Creaser Lot in larger regional context with conservation lands in crosshatch. Map courtesy of NH Fish and Game Department.



Diverse habitats, including upland hardwood, dense softwood, wetlands and open water provide habitat for game species such as moose, bear, deer, wild turkey, ruffed grouse, eastern coyote, fisher, and a wide range of non-game species such as bobcat, porcupine, interior nesting songbirds, great blue heron (rookery trees on large wetland but not located on Creaser Lot), raptors, small mammals, and a wide range of other species. Evidence of moose and bear was found throughout the Creaser Lot during the timber inventory, an indication of deep, remote habitat. One focus of potential future land conservation around the Creaser Lot would be to emphasize protection of parcels that consolidate the magenta and green areas into common and contiguous protected public ownership. The protection of these habitats and their perpetuation and enhancement through careful management practices is a priority of this plan.

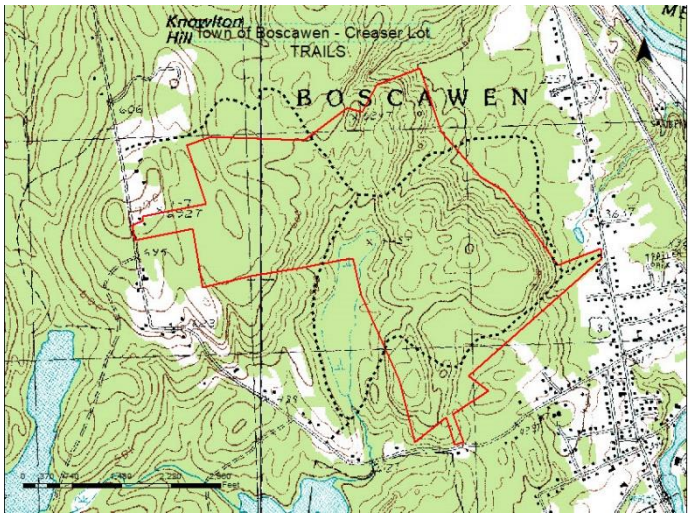
Access and Recreational Use

The Creaser Lot has an extensive network of trails and old skids roads dating from prior forest management, and from ongoing maintenance for winter recreation. It also has three points of frontage access from town- and state-maintained roads. It has two developed truck roads to landing sites used in the 2000-2005 harvest: one from Lower Queen Street that is owned by the town, and one from further up on Lower Queen Street (through Map 83/Lot 33) that would require negotiation of a temporary right-of-way agreement for future use. Development of truck access from Main St. across from Marshall's Gun Shop is feasible, although the portion of the Creaser Lot that could be accessed from this point is not proposed for future forest management due to steep ground conditions and exemplary natural communities. However, as a vehicle access point for parking for passive recreation, this is an excellent location because of its high visibility on Main St. Truck access is also potentially feasible from the frontage at the high point on Upper Queen St., but ground conditions are wet here and a significant wetland blocks access to much of the forestland that would be reached from this point.

A network of maintained snowmobile trails does provide access for winter motorized recreation as well as passive foot-powered recreation – hiking, cross-country skiing, snowshoeing and mountain biking. The local snowmobile club, Town Line Trail Dusters of Penacook, maintains certain trails annually to allow passage of a groomer on trails that are formally designated as part of the State of NH snowmobile trail system, including state corridor 11 and several primary trails. They eventually extend to adjacent properties (including Hirst Wildlife Management Area and the Boscawen Town Forest) and allow many miles of contiguous trail use. These trails are in excellent condition with very little evidence of unauthorized wheeled motorized use that can lead to trail damage. These are mapped in Figure 5.

During the inventory, evidence was found of several "bootleg" trails that are being used infrequently that could potentially be developed and mapped to expand the trail network. Foot trails could also be expanded to interesting land features on the Creaser Lot, such as the high oak ridge at the north extreme of the Lot, the extensive wetland complex to allow wildlife viewing, and several majestic old stands of trees that were identified during the inventory. Foot trails could also be developed cooperatively with the Merrimack Valley School District as the Boscawen Elementary School tract abuts the Creaser Lot on the north side with some very interesting land features on either side of the property boundary in this area.

Figure 5. GPS map of maintained snowmobile trails that utilize Creaser Lot.

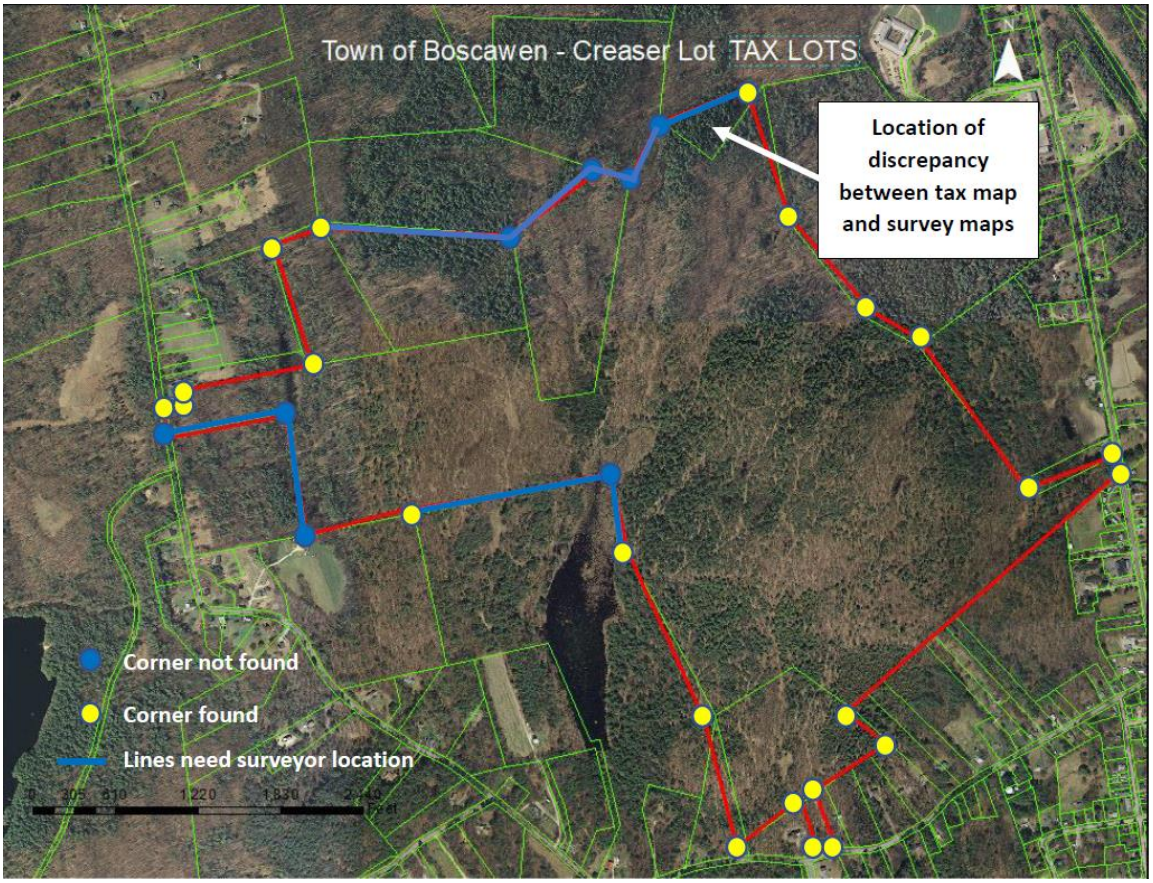


Boundary Lines

It is important to any land ownership to have clear and unambiguous boundary lines easily identifiable to both the owner and abutters. Boundary lines over much of the Creaser Lot need accurate location, blazing and painting. During the geo-locating of property corners, INRS was able to confirm the location of 23 of 31 corners. Figure 6 shows corners and lines that are readily identifiable by proper corner monumentation (drill holes, iron pipes, stone piles, granite posts, existing blazing, stone walls etc.). Most of these would benefit from blazing and painting. Those lines that emanate from corners that could not be identified will require a licensed surveyor to confirm location and monument; by NH state law, a licensed forester cannot blaze lines unless they emanate from unambiguous and monumented corners. Identification of accurate corners and lines should initially focus on those areas where potential forest management activity is contemplated, or where it is known that abutters may be considering forest management or other land development activities.

In addition, INRS identified a discrepancy between the location of property lines as indicated by the town's tax maps (as drawn by Avitar), and recorded survey maps for the original Creaser property and the Merrimack Valley School District property to the north. This discrepancy is identified in Figure 4. INRS also confirmed locations of two minor encroachments (adjacent abutter land development extends over the known property boundary) which can be discussed separately with the BCC and town officials.

Figure 6. Locations of known and found corners, unfound corners, and boundary lines in need of accurate location by surveyor. Also shows location of discrepancy between Boscawen tax maps and survey maps for Creaser Lot and adjacent Merrimack Valley School District land.



Forest Inventory

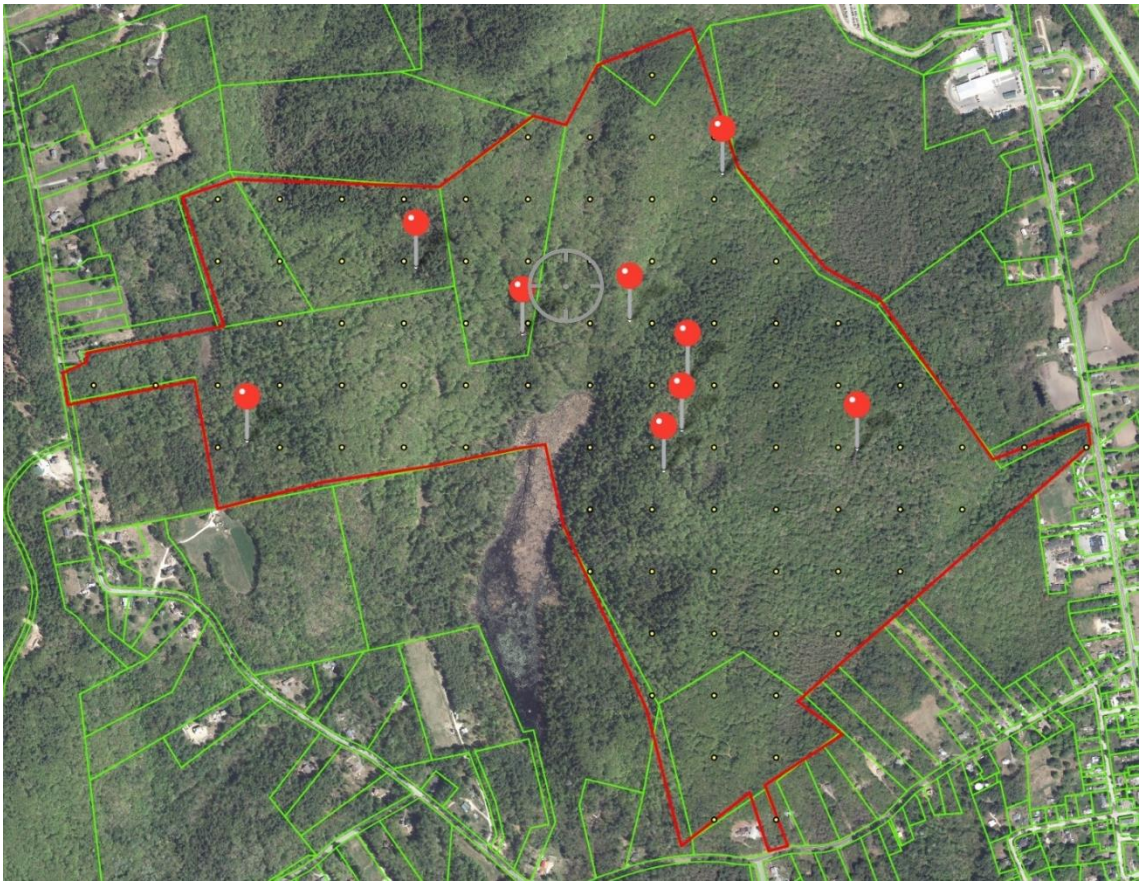
INRS LLC conducted a timber inventory of the Creaser Lot using the following cruise design and methodology:

1) INRS first estimated the land area to be inventoried by classifying operable and accessible acreage based on field reconnaissance and prior knowledge of the property. We excluded as inoperable or not to be managed for timber production significant open marsh or forested wetland areas. The total Creaser Lot operable acreage was classified as summarized below (NOTE: these acreages are based on GPS data; they differ from acreage indicated by tax maps for undetermined reasons):

Land Classification	Acreage
Operable, Inventoried	343
Inoperable, Marsh or Forested Wetland	16
TOTAL ACREAGE	359

2) We estimated a total number of 86 sample plots necessary in order to achieve +/-10% standard error with 95% confidence level for tract size inventory data. These plot locations were randomly distributed over the 343 operable acres using ForestMetrix software, as illustrated in Figure 7 (small yellow dots; red pin drops are random land features documented during inventory).

Figure 7. Location of inventory plots on operable, managed acreage of Creaser Lot. Small yellow dots indicate plot sample points. (Red pin drops indicate land features unrelated to inventory).



3) INRS conducted the variable radius plot sample inventory with a two-man crew over three days from April 11-23, 2019, using a 10 factor basal area prism. We measured all trees 5" and over in diameter for both diameter (at diameter breast height, 4.5' above ground level) and estimated tree height in merchantable 16' log sections. We classified each log section as either sawlog, pallet log, pulpwood (if pine or hemlock) or firewood (if hardwood species). Data was collected using a hand-held IPad datalogger.

4) The resulting dataset was analyzed using ForestMetrix™ and MS Excel software.

Delineation of Forest Types/Stands

The Creaser Lot has a rich and diverse array of forest types and stands that have developed as a function of land use history, soils, species composition, natural events such as storms and insect infestations, and past timber harvesting activity. It is useful for forest management purposes to delineate the forest into stands or management units that have similar forest type characteristics and/or that create units that are convenient and practical for forest management activities. Below is a map (Figure 8) and Table 2 summarizing the forest type and description of each stand or management unit of the Creaser Lot.

Figure 8. Stand delineations of Creaser Lot. Inoperable wetlands were excluded from stand delineations.

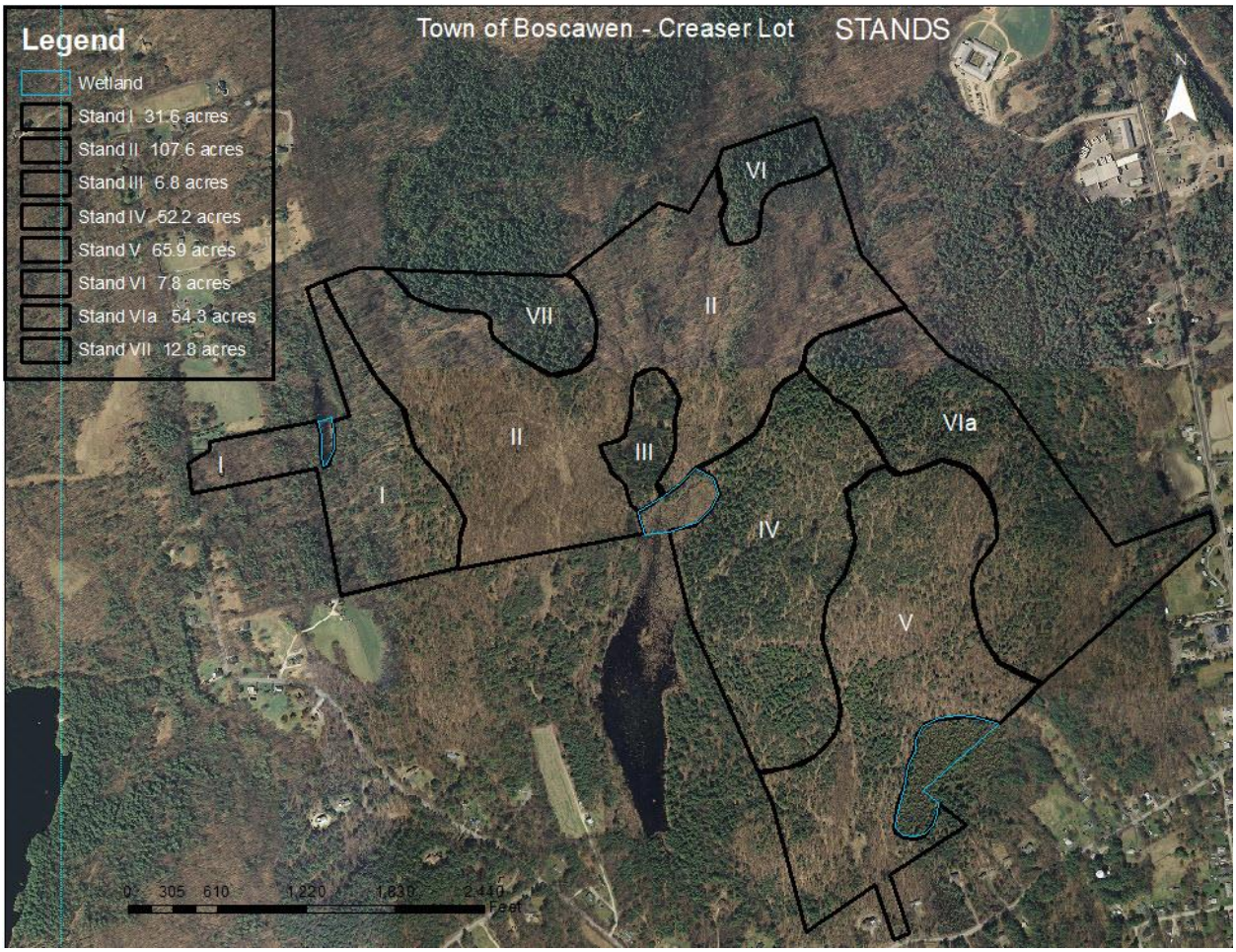


Table 2. Summary descriptions of operable stands or management units of the Creaser Lot.

Stand #	Forest Composition, Size, and Density	Description	Acreage
I	M3B	Adequately stocked stand of sawtimber and pole sized softwoods dominated by good quality white pine, and hardwoods dominated by red maple and red oak. Evidence of harvesting from 1986 and 2000-2005 entries but good quality stocking remains. Access limited by wetland crossing from height of Queen St but may be accessed from first 2000-2005 landing site.	32
II	H3B/H2C	Adequately stocked stand of mature sawlog and pole-sized hardwoods, dominated by red and black oak, growing on ledgy and droughty soils. Extensive areas of young regeneration dating from 1986 and 2000-2005 entries, dominated by red maple and sweet birch. Some mature white pine. Pockets of perched small wetlands and vernal pools. Extensive network of overgrown skid trails. Access from 2000 landing site via R-O-W across 83/33.	108
III	S3A	Dense stand of mature old (>100 years) hemlock and red oak growing along drainage into open marsh area. Little evidence of past harvest in this stand. Access from first 2000-2005 landing site.	7
IV	M3B/H1B	Mixed stand of sawlog and pole-sized white pine, hemlock and oak species, with understory of regenerating hardwoods and some white pine regeneration dating from 1986 and 2000-2005 entries. Extensive network of overgrown skid trails. Accessed from second 2000-2005 landing site off lower Queen St.	55
V	H2-3B/H1B	Hardwood stand dominated by sawlog and pole-sized oak species with some white pine and hemlock. Understory of mixed hardwood species that regenerated from 1986 and 2000-2005 entries, mostly red maple and sweet birch. Extensive network of overgrown skid trails. Accessed from second 2000-2005 landing site off lower Queen St.	66
VI/VIa	S3A	Densely stocked stand of white pine, hemlock and red oak, on sloping and steep ground off east elevations of tract. Much of this terrain is exposed talus slope and ledges, and would be difficult to operate, but potentially accessible from second 2000-2005 landing site and a small portion accessible from Route 3 across from Marshall's Gun Shop.	62
VII	S3A	Mature stand of old hemlock, white pine and oak species, with some evidence of past harvesting around edges. Very wet with standing water, perched wetlands. Likely deer wintering area. Accessible from first 2000-2005 landing site.	13
TOTAL			343

Classification: **Forest Composition** S=softwood, H=hardwood, M=mixed softwood/hardwood
Size 1=sapling/small pole 2=pole/small sawtimber 3=large sawtimber
Density A=overstocked, B=average stocking, C=understocked

Standing Timber Volume and Value

The inventory showed total standing sawtimber volume of **2,067,000 board feet** for all species, **2,837 tons of softwood pulp (pine and hemlock), and 1,973 cords of hardwood firewood** (Table 3).

The average number of trees per acre is 154 and average basal area (a measure of stand density) is 97 square feet per acre, indicating a forest of slightly below average stocking which is to be expected given the extensive past harvesting. Basal area ranges from a high of 160 sq. ft./acre in Stand VII to a low of 82 sq. ft./acre in Stand II. The inventory sampling precision at the 95% confidence level was +/-9.8 % for sawtimber and +/- 6.6 % for all volume.

Table 3. Total sawtimber, pulpwood and firewood volumes, and trees per acre and average basal area, by stand.

Stand	Acres	Total Sawtimber (1,000 board ft)	Sawtimber/ Acre (1,000 board ft)	Total Softwood Pulp (Tons)	Total Hardwood Firewood (cords)	Trees Per Acre (>5" dbh)	Average Basal Area (sq.ft./acre)
I	32	209	6.54	288	118	125	91
II	108	434	4.02	211	753	139	82
III	7	74	10.53	138	54	166	150
IV	55	261	4.74	704	246	161	93
V	66	304	4.61	399	452	184	93
VI/VIa	62	644	10.38	833	280	139	111
VII	13	141	10.87	264	71	207	160
TOTAL	343	2,067	6.03	2,837	1,973	154	97

Northern red oak and white pine comprise slightly more than half of total volume, with 51% (75% of total sawtimber volume) in the commercially valuable species of white pine (39% of total sawtimber), and red oak (36%). Additional sawtimber volume is supplied by hemlock, white oak, black oak, sweet birch and red maple. These are displayed in Figure 9. By applying conservative estimates of current market pricing for sawtimber stumpage value, we calculate an estimate of total sawtimber capital value of approximately $489,000. This is presented in Table 4. This does not include timber capital value of species that represented <1 % of sawtimber basal area, biomass fuel chips or other products, and so represents a very conservative estimate of the value of the timber resource on the Creaser Lot.

Figure 9. Sawtimber volume as % of total volume of major species on Creaser Lot.

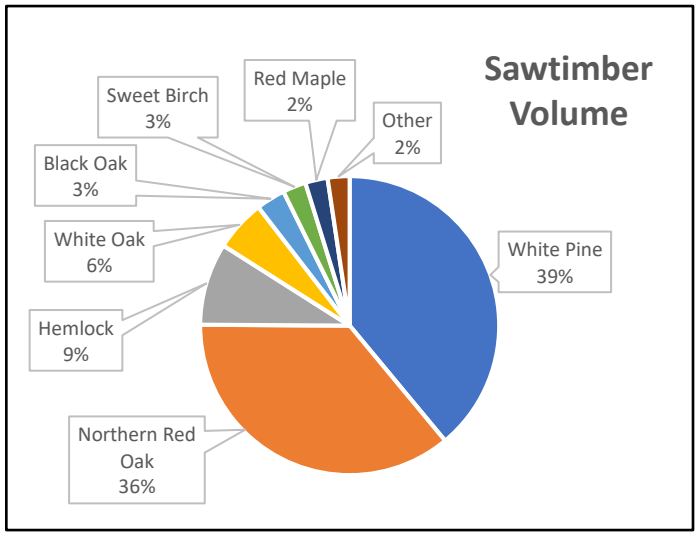


Table 4. Estimate of total capital timber liquidation value using conservative estimates of current market pricing for sawtimber, pulpwood and firewood stumpage (NOTE: Only sawtimber representing >1% of total sawtimber basal area included in this table. No white ash included because it is presumed that all white ash will be dead within five years).

Species/Product	Sawtimber Volume (1,000 bf)	Stumpage Value*	Total Capital Value
HE eastern hemlock	184	$50	$9,200
WO white oak	115	$250	$28,750
RM red maple	50	$200	$10,000
RO red oak	747	$350	$261,450
SM sugar maple	5	$300	$1,500
WP white pine	806	$150	$120,900
SB sweet (black) birch	52	$250	$13,000
Softwood pulp (pine and hemlock; volume in tons)	2,837	$5	$14,185
Firewood (volume in cords)	1,973	$15	$29,595
TOTAL			***$488,580***

Note: Average stumpage values from NHTOA quarterly market report, January 2019; values reflect combination of all sawtimber products: veneer, logs, pallet.

Recommended Conservation, Timber, Wildlife Habitat, and Recreation Management Practices

The Boscawen Conservation Commission INALis responsible for the stewardship of the Creaser Lot for the citizens of the town to meet multiple objectives. These include:

- Recreational use by diverse stakeholders including hunters, hikers, bird watchers, snowmobilers and nature lovers.
- Protection of natural ecosystems and biological diversity.
- Protection and management of habitat for both game and non-game species of wildlife.
- Management of the productive capacity of the forest to produce forest products and generate income to offset management expenses and support strategic acquisition of parcels that complement the town's forest ownership and conservation.

INRS has developed recommended management practices that best balance these objectives to inform the Boscawen Conservation Commission's stewardship of the Creaser Lot for the next 15 years, through 2034. INRS is proposing a longer planning time horizon than is typical for a management plan because no timber harvest is proposed for at least the next 5-10 years due to the heavy harvest that occurred over much of the property from 2000-2005.

Recommendations are summarized in Table 5 and include:

1) **administrative measures** to affirm the town's perpetual commitment to the permanent conservation of these lands and to potentially expand and consolidate the Creaser Lot to include adjacent unfragmented and undeveloped forestlands working with willing sellers;
2) **management activities** to improve forest health and productivity, enhance wildlife habitat, and generate income, implemented through carefully designed timber harvests; and
3) **outdoor recreation measures** to address infrastructure and other needs to increase access to the Creaser Lot for diverse activities, where appropriate.

Table 5. Recommended administrative, forest & habitat management, and recreation measures on the Creaser Lot for the next 15 years.

Category	Recommendation	Comments	Schedule
Administrative	Review, revision and approval of management plan by Boscawen Conservation Commission	Draft presented June 18, 2019; acceptance at later meeting	2019
	Boundary verification and maintenance	Engage surveyor to verify and monument locations of all corners, flag lines where ambiguous (see Figure 6), and verify total acreage of ownership; engage town forester to blaze and paint all boundaries. Also resolve tax map discrepancy with MVSD.	2019-2020
	Public discussion with residents of Boscawen about potential future use of Creaser Lot	Hold public informational session to seek input from residents on use and management of Creaser Lot; include BCC sponsored walk of Creaser Lot	2019
	Designation as Town Forest under NH RSA 31:110	Present warrant article for consideration at 2020 town meeting, following discussion with Board of Selectmen	2020
	Acquisition and conservation of adjacent undeveloped parcels to consolidate Creaser Lot ownership	Work with willing sellers of certain adjacent lots to acquire lands for addition to Creaser Lot, pending availability of funds	2020-2025
	Permanent protection as conservation land by conveyance of easement to qualified land trust	Consider permanent conservation easement to ensure protection as conservation land in perpetuity	2020-2025
Forest and Wildlife Habitat Management	Designation of stands I, II, IV and V and "managed forest" and stands III, VI/VIa and VII as unmanaged natural area	Stands III, VI/VIa and VII contain old forest, steep ground and difficult to operate terrain. They are a long-distance skid from landings used in the 2000-2005 harvest. These 82 acres should be retained in their natural condition as unmanaged natural areas. Stands I, II, IV and V contain highest productivity forest soil groupings and should be retained in active management.	2019-2020
	Timber sale(s) to improve residual stand	Two timber sales (stands I and II, stands IV and V) should be delayed for another 5-10 years to	2025-2034

	quality, enhance wildlife habitat, and generate income to support other management activities	allow current stand conditions to mature to develop higher value and denser stocking. Each would emphasize improvement cuts to remove low quality wood and improvement residual stand, and to diversify wildlife habitat. Each would be expected to generate gross revenues of $25,000-40,000. Access to stands I and II would require negotiation of right of way through 83/33 and also construction of new landing from Upper Queen St. Access to stands IV and V is from existing landing off Lower Queen St. Detailed silvicultural and habitat prescriptions can be developed at a later date. See Figure 10 below.	
Recreation Measures	Reaffirm relationship with Town Line Trail Dusters Snowmobile Club	This is an important and beneficial cooperative relationship and the BCC should meet with TLTD to reaffirm continued use of trails on Creaser Lot	2019
	Identify and develop new non-motorized trails to interesting areas of Creaser Lot, with input from residents.	There are many interesting land features in the Creaser Lot that are currently not accessible by developed trails. Several miles of new trails could be developed, especially to designated natural areas in stands III, VI/VIa and VII. Including the Boscawen Town Forest, City of Concord conservation lands, NH F&G's Hirst Marsh and the Creaser Lot, there is the potential for an extensive network of multi-use trails totaling some 10-15 miles with the possibility for developed a remote camping site.	2020-2022
	Explore cooperative trail development with Merrimack Valley School District	There are interesting trail development opportunities in the northern section of the Creaser Lot where the land abuts the Boscawen Elementary School parcel. This could be an excellent senior project for an MVHS students and involve students from BES.	2020-2022
	Develop signage, trailhead parking and map kiosk at entry point across from Marshall's Gun Shop	This location offers a convenient and highly visible place for parking access and an informational kiosk that would enhance use and appreciation of the Creaser Lot. See Figure 10.	2020-2022
	Develop additional trailhead access from landing on Lower Queen St., and/or from new future landing location on Upper Queen St.	Additional trailhead access and parking can be provided from existing landing. Would require upgrade of access road and clearing of landing. A new future landing off Upper Queen St. could provide another trailhead access location and parking. See Figure 10 below.	2021-2023

Figure 10. Recommended potential future forest management and recreational access for the Creaser Lot.