

Annual Monitoring Report Summary
Downeast Lakes Land Trust,
Downeast Lakes Community Forest

2021

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I. Introduction

Downeast Lakes Land Trust (DLLT) periodically monitors its forest to ensure that its management objectives for wildlife, recreation, timber production, and environmental protection are being met. Some items, such as the inventory of standing timber, are conducted periodically. Others, such as monitoring timber harvest operations, may be conducted on a weekly basis as operations are ongoing. This annual report summarizes the monitoring information for members of the land trust, members of the local community, and for others interested in the results of DLLT's management. For more information on DLLT's forest management, please contact the land trust or visit www.downeastlakes.org. The monitoring update includes annual summaries for the operating year. Periodic monitoring data that are updated every 5-10 years are included in Section III.

This report covers the Downeast Lakes Community Forest, which consists of the 27,080-acre Farm Cove Tract acquired by Downeast Lakes Land Trust in 2005 and expanded in 2008 by acquisition of the 6,628-acre Wabassus Lake Tract and in 2016 by the acquisition of the 21,853-acre West Grand Lake Tract. The management plan for all tracts was updated and adopted on March 2nd, 2015. No major changes in policy or management strategy have taken place. The purchase of timberland in Lakeville, Maine was completed in November 2021 and adds 2015 acres.

II. Annual Monitoring Update

Timber Harvest

Timber Harvest Summary	2009-2016 (Average)		2017		2018		2019		2020		2021	
	Species	Prod.	Cords	Prod.	Cords	Prod.	Cords	Prod.	Cords	Prod.	Cords	Prod.
Hemlock	Stud	1309	Stud		Stud	52	Stud	1072	Stud	270	Stud	4715
Hemlock	Pulp	1487	Pulp	538	Pulp	1464	Pulp	2447	Pulp	1839	Pulp	2935
Hemlock	Logs	155	Logs	1003	Logs	663	Log	685	Log	902	Log	826
Hemlock	WTC	160	WTC	361								
Spruce	Logs	382										
Softwood ⁴	Pulp	531	Pulp	103	Pulp	693	Pulp	3118	Pulp	1002	Pulp	442
Spruce/Fir	Stud	330	Stud	1970	Stud	2995	Stud	1928	Stud	1573	Stud	1751
Red Pine	Land Run				Land Run	325						
White Pine	Logs	171	Logs	243	Logs	366	Logs	356	Logs	1434	Logs	706
Hardwood	Pulp	1695	Pulp	2478	Pulp	4582	Pulp	2812	Pulp	2518	Pulp	1678
Hardwood	Logs	3				19		1		1		1
Hardwood	Veneer	1										
Hardwood	Firewood	14						43		33		35
Subtotal (without biomass)¹		6233		6096		11157		12462		9572		13,089
MX Biomass ¹	Chips	1964	Chips	4502	Chips	1311	Chips	230	Chips	0	Pine tops	140
Biomass ²	2013	1296								33		
Biomass ³				583								
Total with biomass:		8434		11781		12468		12692		9605		13,229

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¹ Biomass sales are typically incidental to planned harvest volumes and are composed of tops or limbs that are not considered within timber inventory. In 2009, 112 cords of biomass included in the figures above was harvested during maintenance of the Farm Cove Dam Road.

² Biomass in 2013 was also generated from a wildlife habitat project that had no commercial timber sale, in this case the biomass was generated from the entire tree, not merely the tops.

In 2014 poor markets resulted in 789 cords to be chipped. This was counted as round wood and deducted from the allowable harvest, rather than biomass byproduct.

In 2015, hemlock markets were poor, and as a result 972 cords of whole tree hemlock were chipped for biomass.

In 2016, hemlock markets were poor, and as a result 924 cords of whole tree hemlock were chipped for biomass.

³Biomass in 2017 was also generated from a wildlife habitat project that had very little commercial value. In this case the biomass was generated from the entire tree, not merely the tops.

⁴Softwood Pulp was composed of a mixture of White Pine and Hemlock pulpwood at the end of deliveries in 2019. For a few weeks, that was the only way to sell Hemlock pulpwood.

Other Forest Products

DLLT, as part of its community forest management, routinely issues permits to local users of forest products, subject to policies and procedures approved by the DLLT Board of Directors. A voluntary survey is mailed to each permit holder the following year to keep track of products harvested.

In 2021, DLLT issued permits for gravel, firewood, “tips” for wreaths, trees, and craft wood.

Gravel: 8 permits issued, (8 reported), 225 cubic yards sold, 417 yards total used.

Firewood: 55 permits issued, (30 reported), 35 cords reported

Tipping: 5 permits issued, (2 reported), 50 lbs reported

Trees: 0 permits issued, (0 reported), 0 trees used

Craft wood: 4 permits issued, (4 reported), 5 trees produced more than 40 burls

Unanticipated Removal or Loss

DLLT staff and forestry contractors monitor the forest for unanticipated loss due to insects, disease, wind, fire, excessive browsing by animals, and timber theft during routine management operations. DLLT also uses reports from members and others who use the forest to keep informed of changes in the forest.

No unanticipated losses occurred in 2021.

Regeneration

DLLT staff, board members, and forestry contractors monitor forest harvest areas to determine if regeneration is occurring as anticipated and intended in forest harvest plans. Qualitative or quantitative inspections generally will occur within three years of harvests intended to encourage regeneration.

2016 Regeneration and Monitoring Statement

Background: As specified in the management plan, 2016 harvest regeneration monitoring was conducted after 5 growing seasons, in March 2022. This gives forest managers an opportunity to see any other progress in the development of post harvest stands. If undesirable conditions are observed, they were noted to avoid those conditions in the future.

Results:

Area 1 East of Grand Lake Brook East – Winter 2016 (T6ND)

- **Light to moderate thinning:** This mixed wood area became a softwood area after harvest. The residual basal areas ranging from 60 – 100 sq. ft. per acre of hemlock spruce, fir, cedar, and occasionally white pine. It easily meets the secondary cover

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guidelines for deer management areas. Most of any hardwood regeneration has been browsed. Overall forest health appears good.

Area 2 West Rolfe Brook, east of the Wabassus Mountain Road in T6ND

- **Patches and Moderate Thinning:** This softwood and mixed wood area has residual basal areas of 20 or less square feet in patches, and averaging about 70 sq. ft. per acre in mixed stands. There was blowdown on the edge of one patch, but excellent regeneration is now growing, dominated by spruce. Not all of area 2 was harvested. Forest health is good.

Area 3 West Rolfe Brook, east of the Wabassus Mountain Road in T6ND

- **Regeneration Release:** This softwood area has scattered mature trees and advanced softwood regeneration is often overstocked. Acres that were not harvested are very dense with sapling and pole size softwood. In the patches, softwood regeneration is more than adequate, with even spruce dominating at times.

Area Grand Lake Brook Rd. Area 2 (Area 1 not checked) T6ND

- **Moderate Thinning:** The residual stand dominated by hardwood varies from 40-60 sq. ft. The area has a few scattered softwood blowdowns. Beech regeneration is doing well while maple and birch has been browsed. There are many hardwoods in the sapling and pole size, but enhancement planting could be considered. There are lots of raspberries growing in skid trails.

Area Sonny's Lane Grand Lake Stream

- **Improvement Thinning:** The basal area of the mixed stand of residual trees varies from 40 – 50 sq. ft. On shallower upland slopes, an unacceptable amount of blowdown has occurred. Beech regeneration is doing well, but birch and maple regeneration is often browsed. Both the residual stocking of larger trees and seedling/sapling size trees is classed as understocked on some acres in this type. Conditions were not favorable for pine regeneration, since no seedlings were seen near residual pine trees. Enhancement planting on some acres should be considered.

Focus Species Habitat Management Activities

Management for specific “focus species” is used to benefit species of interest to the local community and to provide habitat for a full range of wildlife species found on the forest. The management plan sets out specific management activities for these species.

DLLT Self-Designated Deer Management Areas

DLLT has a significant, long-term goal of restoring and expanding deer wintering areas. The quantity and quality of these areas is a limiting factor for local deer survival. Current management activities include maintaining mature forest softwood cover through partial harvesting in historic deer wintering areas (primary and secondary cover), and harvesting to create openings that will result in new growth and browse. Additionally, management strives to

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aid regeneration of the forest to ensure a steady supply of future winter cover, and seeding landings to create summer food for deer and other species.

Deer Wintering Area Management Activities							
Habitat and Activity	2008- 2015 (ac)	2016 (ac)	2017 (ac)	2018 (ac)	2019 (ac)	2020 (ac)	2021 (ac)
Partial harvests (selection, initial shelterwood, and intermediate harvests)	147	0	30	21	30	210	90
Regeneration harvest openings (patch-cut, overstory removal, and clearcut)	49	0	0	0	110	0	110
Herbaceous seeding ¹	0	0	0	0	1	0	1
Management consistent with DWA 5-year operations plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Monitoring:							

During the Summer of 2021, timber harvesting was conducted near Burroughs Brook, within our deer management area. The harvest in primary and secondary cover consisted of light thinning to preserving cover. Overstory removals were completed on two blocks west of the Farm Cove Mountain Road.

Snowshoe Hare

Ideal snowshoe hare habitat is created by even-aged regeneration harvests in softwood-cover. The “regeneration harvest openings” for deer wintering area management are also used to monitor the amount of snowshoe hare habitat created. Snowshoe hare habitat is consistent with nearly all DLLT’s shade tolerant conifer management.

Grouse and Woodcock

Grouse and woodcock management is based on creating a number of patches of different age classes in aspen and birch stands. The following monitoring elements have been included to track progress toward objectives outlined in the management plan:

Grouse and Woodcock Management

¹ DLLT also keeps track of species and location of species used in herbaceous seeding.

² Harvest near Spring Cove in T5 and T6ND – partial cuts in DMAs in 2020

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Annual Monitoring Element	2008-2015	2016	2017	2018	2019	2020	2021
Number of grouse/woodcock unit plans developed	Seven	None	None	None	One	None	None
Cumulative number of units designated for active management	Eight	Eight	Nine	Nine	Nine	Nine	Nine
Total number of acres harvested (clearcut or overstory removal) across all management unit blocks	139.9	0	80	0	48	0	0
Number of acres of herbaceous seeding	Landings Seeded Summer	Landings Seeded Summer	Landings Seeded Summer	None	Landings Seeded Summer	Landings seeded Fall	Landings seeded Summer/Fall

* In the 2008 summer harvest, seven patch cut harvest blocks were created in a poplar-birch fire origin stand on the south side of Burroughs Brook on the Farm Cove peninsula. These cuts provided early-successional habitat, including habitat for grouse and woodcock, and browse for deer and moose. Average block size was 0.56 acres, with just under 4 acres harvested in total. A complete plan for this grouse/woodcock unit has not yet been developed, but the harvest plan calls for a 10-year re-entry to harvest new 0.5 acre patches adjacent to the patches harvested in 2008.

* In the 2009 summer harvest, a set of 3 patch cut harvest blocks in a 28-acre poplar-birch fire origin stand were created. These cuts were located east of Burroughs Brook on the Farm Cove Mountain Road, and provided early successional habitat, including habitat for grouse and woodcock, and browse for deer and moose. The average patch size was 0.3 acres, with under 1.25 acres harvested in total.

*In the 2010 winter harvest, 130 acres of designated grouse/woodcock habitat was included in the Farm Cove Peninsula. In the 2010 summer harvest, there were 22 acres of designated grouse/woodcock habitat included. Upon closer inspection of designated grouse areas, it was determined areas were either un-merchantable, or were currently unsuitable for grouse and woodcock management.

*In the 2011 winter harvest, 9 acres were harvested in 8 patches of between 2 and 0.5 acres each. These areas were dominated by mixed intolerant hardwoods, with some scattered hemlock and pine. This occurred on the Daugherty Ridge Road. In the summer of 2011, 4 clearcuts were created ranging between 3 and 6 acres in size. These patches were irregular, and occurred mostly in intolerant hardwoods with some mixed spruce and hemlock. This occurred on the Dobsis Dam Road.

* In the 2012 summer harvest, a plan encompassing roughly 100 acres was developed to provide early successional habitat on a rotational basis. In 2012 approximately 16 acres were clearcut in 2.5 and 4.5-acre circles along the 4th Lake Road between 0.5 and 1-mile markers.

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* In 2013 the harvest unit established in 2012 was completed, totaling 37 acres in the entire harvest unit. In addition, a new harvest unit was established on Norway Point, east of Farm Cove. This consisted of a 40-acre stand where approximately half the area was clearcut in the form of 2-acre rectangles in a checkerboard fashion, totaling approximately 22 acres.

* In 2015 the Belden Brook grouse and woodcock management plan was continued for its second entry. A total of 42 acres was created. Five 3-acre clearcuts were included in this project for the NRCS, qualifying us to continue with the CSP program. Other patches were generally larger, but within Cat. I status.

*In 2017, the first entry of patch cuts was implemented on the Coca Cola Highway. A total of eight patches totaling 35 acres was cut. Eleven patches were cut on Sonny's Lane, totaling approximately 45 acres.

*In 2019, the second entry of the first phase of patch cuts was completed on the Coca Cola Highway. Eleven patches totaled approximately 48 acres.

The balance of aspen-birch age classes on the entire forest is also monitored periodically as cover type maps are updated (see Section III).

Black Bear

Black bear habitat is managed by creating and maintaining early successional patches for grouse and woodcock, and through implementation of hard mast guidelines during harvest operations. Priority hard mast areas are currently being mapped.

Riparian Zone Management

Harvest and other operations monitoring forms are used to gather information on harvest activities within riparian management areas. A summary of problems identified (e.g., unsatisfactory performance relative to management plan guidelines or site-specific plans) and steps taken to correct problems are described below.

Year	Unsatisfactory Implementation of RMZ Guidelines and Action Taken				
	Trout/Salmon	Beaver	Lake	Other Stream	Vernal Pool
2008-2016	No problems observed	No problems observed	No problems observed	No problems observed	No problems observed
	Action:				
2017	No problems observed	No problems observed	No problems observed	No problems observed	No problems observed
	Action:				
2018	No problems observed	No problems observed	No problems observed	No problems observed	No problems observed
	Action:				
2019	No problems observed	No problems observed	No problems observed	No problems observed	No problems observed
	Action:				
2020	No problems observed	No problems observed	No problems observed	No problems observed	No problems observed
	Action:				

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2021	No problems observed	No problems observed	No problems observed	Insufficient drainage near small stream road crossing	No problems observed
	Action: Added drainage and water bars at close out of temporary spur road.				

Beaver

Habitats modified by beaver activity have been shown to be beneficial to a wide range of wildlife, including waterfowl, wading birds, migratory songbirds, and moose. Other mammals are such as deer and black bear are attracted to the early flush of nutritious vegetation in spring. Recent studies from the Moosehead Lake region have found that rusty blackbirds (a declining species listed as Special Concern in Maine) were strongly associated with beaver-impounded wetlands, and the olive-sided flycatcher (also Special Concern) was also found in these areas (Pelletier and Arsenault 2007). Maine has a long history of habitat management guidance that recognizes the benefits of maintaining beaver activity on the landscape (Foss 1999, Bryan 2007, Deifenbach et. al 2008). Only one stream in the Downeast Lakes Community Forest (DLCF), Burroughs Brook, has been designated as a priority beaver habitat in the Focus Species Addendum. Burroughs Brook is a slow-moving stream with historic beaver use and forest cover that is less dense than cover found in streams with designated priority for brook trout and Atlantic salmon.

Brook Trout / Atlantic Salmon

A forty-foot span bridge replaced a 6-foot diameter pipe at the outlet of Upper Getchell Lake in T43. The recommendation by Maine IFW for this change was to help preserve a new berm separating the watersheds at the Old Stone Dam site on the south end of Wabassus Lake. The berm is intended to keep non-native fish from entering the West Grand watershed.

Exotic and Invasive Plants

DLLT monitors the use of exotic (non-native) species to ensure that they do not become invasive. Currently DLLT's use of exotic species is limited to planting non-invasive grasses and legumes for wildlife habitat improvement, including In addition, DLLT monitors for the presence of known invasive plants that may be present in the area, such as variable-leaf milfoil. A new tool called the Maine Invasive Plants Field Guide is now in use by DLLT staff.

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Exotic and Invasive Plants						
	2008- 2016	2017	2018	2019	2020	2021
Wildlife Plantings						
Number of sites planted	Harvest landings from 26 seasons and excavated ditches	Summer 2016 and winter 2017 harvest landings and excavated ditches		Summer 2019 harvest landings and excavated ditches	Summer 2020 harvest landings and excavated ditches	Summer 2021 harvest landings and excavated ditches
Species	Conservation Mix (Contains non-native grasses & legumes)	Conservation Mix (Contains non-native grasses & legumes)	Conservation Mix (Contains non-native grasses & legumes)	Conservation Mix (Contains non-native grasses & legumes)	Conservation Mix (Contains non-native grasses & legumes)	Conservation Mix (Contains non-native grasses & legumes)
Estimated total area planted	3 acres	2 acres		2 acres	2.1 acres (3)	2.6 (4)
Seed mix does not contain species on Maine's list of invasive plants (Y/N)	Y	Y	Y	Y	Y	Y
Location identified in GIS (Y/N)	Y	Y (general location of harvest areas and roads)	Y (general location of harvest areas and roads)	Y (general location of harvest areas and roads)	Y (general location of harvest areas and roads)	Y (general location of harvest areas and roads)
Number of sample sites checked for undesirable spread	Thirty (Earlier Plantings)	Three (earlier plantings)	None	None	None	None
Undesirable spread noted?	No	No	No	No	No	No
Invasive Plants						
All harvest sites checked?	Yes, During routine operations and tour	Yes, During routine operations and tour	Yes, During routine operations and tour	Yes, During routine operations and tour	Yes, During routine operations and tour	Yes, During routine operations and tour
Species found? ^{1,2}	No	No	No	No	No	No

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- ¹ Describe severity or impacts of any invasive species or exotic species and develop an action plan if management is feasible and warranted.
- ² Staff received training and procured the new "Maine Invasive Plants Field Guide".
- ³ Staff planted pollinator seed mix, 0.1 acre at Billy Brown Field.
- ⁴ Staff planted pollinator seed mix, 0.6 acre near Musquash Esker Trail

Harvest Impacts

Harvest sites and road improvement projects are monitored by DLLT's Forest Manager, Executive Director, and Board of Directors to ensure compliance with applicable laws and Best Management Practices designed to protect soil and water quality. Harvest operations are also monitored to ensure that operations comply with silvicultural prescriptions, damage to standing timber and regeneration is minimized, sensitive sites are protected, and site-specific wildlife practices and objectives are being met.

	Compliance with Harvest Guidelines					
Monitoring element/guideline	2008-2016	2017	2018	2019	2020	2021
Hard mast referenced in harvest plans for applicable stands	S	N/A	S	S	S	S
Satisfactory execution of hard mast guidelines during harvest	S	S	S	S	S	S
Wildlife trees and downed logs	S	S	S	S	S	S
Retention patches	S	N/A	NA	NA	NA	NA
Wildlife trees retention patch: quantitative sample of selected harvest blocks (number of blocks, performance)	S	S	N/A	NA	NA	NA
Riparian and Lakeshores: applicable guidelines referenced in management plans	S	N/A	S	S	S	S
Riparian and Lakeshores: applicable guidelines and BMPs implemented	S	S	N/A	S	S	S
BMPs beyond riparian and lakeshore zones	S	S	S	S	S	S
# Vernal pools known prior to harvest plan:	0	0	1	0	0	0
# New vernal pools identified	0	0	0	2	0	0
Vernal pools identified in harvest plans and guidelines implemented during harvest	NA	NA	S	S	NA	S

S – Satisfactory

U - Unsatisfactory, problem ongoing (describe below)

U/S – Unsatisfactory, problem corrected (describe below)

Except where noted above, all harvests are monitored for all element
(1 pending verification by biologist)

Unsatisfactory Harvest Conditions: Identification and Resolution

During 2021, harvest conditions were generally satisfactory in terms of both silvicultural and ecological objectives. The harvest contractor has continued to demonstrate a strong understanding of DLLT goals and objectives.

Road Monitoring

Road Monitoring Summary	
YEAR	Roads Inspected, Problems Identified and Corrected
2008	4 th Lake Rd: Entire road monitored; previously approved maintenance project completed, including installation of 10 culverts, and ditching and re-shaping on portions of 7 miles of the road, and routine grading occurred. Brushing of the roadway was completed in 2007. Installation of a new bottomless arch culvert at Rolfe Brook to improve aquatic habitat and fish passage completed. Additional ditching, culvert, and graveling work planned for 2009 and beyond.
	Farm Cove Dam Rd.: entire road monitored, brushing completed; installation of new bottomless arch culvert at Scott Brook to improve aquatic habitat and fish passage and two new nearby cross-drain culverts completed.
	Farm Cove Mountain Rd: road north to Burroughs Brook monitored; ditching and surface maintenance completed as needed to support harvest activities.
	Dobsis Dam Rd: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial watershed impacts but maintenance improvements recommended for recreational use as funds available. Roadside brushing was completed in 2007.
2009	4 th Lake Rd: Entire road monitored; routine seasonal gradings conducted, culvert replaced at mile 8.6.
	Farm Cove Dam Rd.: Entire road monitored; culvert replaced at mile 2.8
	Farm Cove Mountain Rd: road north to Burroughs Brook monitored; ditching and surface maintenance completed as needed to support harvest activities.
	Dobsis Dam Rd: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial watershed impacts but maintenance improvements recommended for recreational use as funds available.
	Third Lake Rd: on Wabassus Tract acquired 12/08: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial immediate watershed impacts but maintenance improvements recommended. Arch culvert installed at Wabassus tributary stream (see "Brook Trout" above). Major erosion risk exists on section of road below Wabassus Mtn. with highly eroded ditch that lacks functional cross drains; drainage restoration project planned for 2010.
	43-00-0 / Little River Rd: on Wabassus Tract acquired 12/08: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial immediate watershed impacts but maintenance improvements recommended. Major portions lack adequate drainage ditches or cross drains and are at risk for erosion, surface extremely rough. Restoration project planned for 2010
	42-00-0 / Little River Rd: on Wabassus Tract acquired 12/08: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial immediate watershed impacts but maintenance improvements recommended. Lacks adequate drainage ditches or cross drains and is at risk for erosion, surface extremely rough. Restoration project planned for 2010
2010	Wabassus Mtn. Rd: on Wabassus Tract acquired 12/08: entire road monitored; surface condition poor and limited surface erosion occurring; no substantial immediate watershed impacts. Lower priority for restoration.
	4 th Lake Rd: Entire road monitored; routine seasonal gradings conducted.
	42-00-0 and 43-00-0 Rds: Drainage and surface restoration projects completed, including culvert installations.
	0-88 Rd: arch culvert installed at North Brk; see "brook trout" above.
	Wabassus Mtn. Rd: arch culvert installed at North Brk; see "brook trout" above.
2011	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted

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	3rd Lake Ridge Rd (60-00-0): Drainage and surface restoration project completed on northern portion of road, including culvert installations.
2012	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted. Wabassus Mtn. Rd, portion of 3 rd Lake Ridge Rd, portion of Dobsis Dam Rd, drainage and surface restoration project completed, including culvert installations; small culvert installation on ATV trail near Billy Brown field.
2013	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted. Planned gradings completed on 3 rd Lake Ridge Rd, Dobsis Dam Rd, Farm Cove Dam Rd, Wabassus Mt Rd. Drainage and surface restoration projects completed on portions of 4 th Lake Rd, 4 th Lake Landing Rd, Belden Brook Rd, 3 rd Lake Ridge Rd, and Farm Cove Dam Rd, including culvert installations; approx. 10.5 miles of roadside brushing completed
2014	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted Planned gradings completed on 3 rd Lake Ridge Rd, Dobsis Dam Rd, Farm Cove Dam Rd, Wabassus Mtn. Rd Drainage and surface restoration projects completed on portions of 4 th Lake Rd, including culvert installations.
2015	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted. Four culverts were also installed. Planned gradings completed on Farm Cove Dam Rd, 3 rd lake Ridge road, 3 rd Lake outlet road, and a portion of the Beldon Brook Rd. Gravel was screened for the first time in the Elsemore Pit.
2016	4 th Lake Rd & Little River Rd: Entire roads monitored; routine seasonal gradings conducted. Four arch culvert installations, 1 decommissioning, 6 drainage culvert installations, and 9 miles of brushing on Amazon Road.
2017	4 th Lake Rd, Little River Rd, Amazon Rd: Entire roads monitored; routine seasonal gradings conducted. 1 bridge installation, 3 decommissionings. ¼ mile ditching 1 gate installation
2018	4 th Lake Rd., Little River Road, Amazon Rd.: Entire roads monitored; routine seasonal gradings conducted. No bridge installations.
2019	4 th Lake Road, Little River Road, Amazon Road: Entire roads monitored; Summer grading conducted. One arch installation, 40' portable bridge installed twice for harvesting. Gravel screened and stockpiled at Elsemore Pit. Approximately 4 miles of brushing done on Wabassus and 3 rd Lake Ridge Road. Six culverts replaced.
2020	Seven gates were installed to protect main roads from spring damage. 4 th Lake Road, Little River Road, Amazon Road: Entire roads monitored; Summer grading conducted. Gravel screened from the Chet's Camp Road pit and used on 3.7 miles of resurfacing of the Amazon Road. 3.9 miles of ditching on the Amazon Road. Reshaped 4 hills on the Little River Road. Fall grading of 7 miles of the 4 th Lake Road. 6.6 miles of roadside brushing.
2021	New Bridge installation at the Lower Oxbrook Tributary on the Amazon Road. Portable Bridge installed at the outlet of Upper Getchell Lake, Summer and limited fall grading conducted. Resurfaced 3 miles of the 4 th Lake Road using screened broken granite from the Passamaquoddy Pit. Roadside Brushing complete on about 4 miles of the 4 th Lake and 3 rd Lake Ridge Roads. Mile 7 to 11 of the 4 th Lake Road was ditched. Gates removed on 4 th Lake Road. Gates added to 8 side roads.

Pesticides and Biological Control Agents

DLLT does not currently use pesticides or biological control agents. If in the future a need to use the agents arises, DLLT will prepare an evaluation of the risks, prepare appropriate application plans, and monitor use in accordance with the Downeast Lakes Community Forest Management Plan, the conservation easement, and Maine law and Forest Stewardship Council certification standards.

Social and Economic Monitoring

Social and Economic Monitoring						
Element	2008-2016 (Avg)	2017	2018	2019	2020	2021
Total volume of wood harvested (cords)	6213	6696	11157	12462	9605	13238+fw
Number of permanent DLLT employees	3	4	4	5	5	6
Number of temporary DLLT employees	0	2	4	3	3	3
Number of contractor and subcontractor employees	Appr. 13*	Appr. 10*	Appr. 10*	Appr*. 10	Appr*. 10	Appr*.10

* Contractors and subcontractor employees include foreman, operators, truckers, and other employees of harvest contractor Davis Forestry Products; only harvest-related contractor employees are included here.

DLLT’s board members and staff, and public meetings attended or hosted by DLLT are the major means by which DLLT monitors the public reaction to management.

2021- In the past year, DLLT has heard many positive comments regarding the Trust’s road management, conservation of lands, and efforts to preserve the lakeshores. Specific comments included positive reactions about the resurfacing of the 4th Lake Road, the Lower Oxbrook Tributary, and Getchell Lake Bridge installations. We also received positive comments regarding the expansion of the hiking trail system.

Common Loon Monitoring

In addition to monitoring activities directly related to management of the Downeast Lakes Community Forest (formerly the Farm Cove Community Forest) described in this report, DLLT has had a program of monitoring common loon productivity on lakes throughout the region,. This project was established in 2001 in cooperation with the U.S. Fish and Wildlife Service, Biodiversity Research Institute, and also involved Maine Audubon in 2011. This monitoring effort collected a baseline set of data on loon reproduction through 2011. An executive summary of the loon monitoring report is available upon request.

III. Periodic Forest Monitoring Data

Because the following data are gathered periodically (e.g., every 5-10 years), this section of the report will be only updated as new data become available.

Forest Inventory

Standing Timber

Forest inventory is the basis of proper forest management. The following is a summary of the data that have been collected on the forest. A forest-wide inventory took place in 2000 on the original Farm Cove property. An inventory of the Wabassus Lake Tract was completed in 2008. In the fall of 2014, aerial photos and stand type maps were developed.

New inventory points were completed in 2010 on the original Farm Cove Community Forest, exclusive of the Wabassus Lake Tract. After processing the cruise data collected by Fountains Forestry, the following results were compiled using the 7 Islands inventory program, ‘MBG tools’.

The following table contains current cruise information (2010) and past cruise data and estimates.

Summary	Entire Ownership (excluding Wabassus)	Without LSMA or Eco Reserve	Without Eco Reserve	LSMA Only	Ecological Reserve Only
Cords per Acre 2003	17	?	?	?	?
Estimated Cords per Acre 2008	18.1	17.6	17.5	17	21
Cords per Acre 2010	18.4	17.8	18.1	19.3	19.7

In 2015, this inventory information was updated in 2014 with re-measured post-harvest plots, and “grown” plot information received from Finite Carbon as part of our carbon monitoring program. This data was processed using = Landscape Management Systems (LMS) and formulas developed by the Forest Service to update the inventory once again. The results were not surprising; there is a clear annual net gain. Harvest rates are approximately half of growth. More inventory information can be delivered upon request.

Based on the most recent ***round wood*** cruise data, the following has occurred:

- Farm Cove Tract, 2005-2015
 - The average net (growth-harvest) increase in stocking from 2005 to 2015 was 0.35 cords per acre per year.
 - The average gross growth (excluding harvest) was 0.63 cords per acre per year.
- Wabassus Tract, 2007-2014

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- The average net (growth-harvest) increase in stocking from 2007-2015 was 0.31 cords per acre per year.
- The average gross growth (excluding harvest) was 0.47 cords per acre per year.
- West Grand Lake Tract
 - The average net (growth-harvest) increase in stocking from 2009-2014 is unknown. The property was not in the possession of DLLT until July of 2016.
 - The average gross growth (excluding harvest) is unknown. The property was not in the possession of DLLT until July of 2016.

*Numbers are based on round wood only.

In 2015 most of the Farm Cove Community Forest was re-inventoried with fixed 1/15-acre plots as part of our Farm Cove carbon project. This new inventory, although conducted on the same plot location, resulted in an additional 76,312 cords, averaging an additional 3.6 cords per acre (25.6 cords/acre). With the addition of the West Grand Lake Tract, our Annual Allowable Cut (AAC) has increased to 12,000 cords per acre per year.

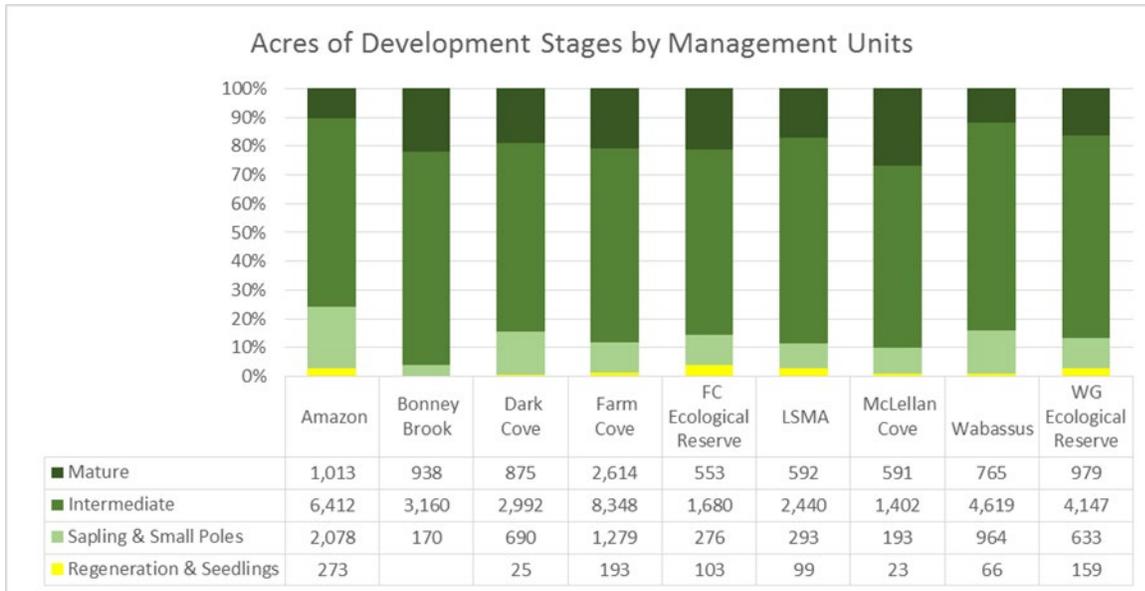
Changes in Habitat Conditions

The Downeast Lakes Community Forest is managed for a range of forest types and ages to provide diverse and abundant habitat for wildlife species of interest to the local community. Aerial photographs and cover type maps are used to assess forest habitat conditions for most species. To help manage the forest, the management plan has divided the forest into the following management units:

Late Successional Management Area	North of the 4 th Lake Ecological Reserve including Beldon Brook Area and southwest of Third Lake Ridge Road
Dark Cove:	South of Dobsis Dam to Fourth Lake Road and West to Buck Knoll
McLellan Cove:	North of West Grand Lake
Farm Cove:	South of West Grand Lake and east of the Wabassus-Pocumcus thoroughfare. Includes 30 acres on Kitchen Cove Point
Wabassus Lake:	T43, area south of Fourth Lake Road
Bonney Brook:	Areas below the Milford Road, and along the Bonney Brook Rd.
Amazon:	Area to the North and South of the West Grand Lake ecological reserve
Amazon-Musquash Ecological Reserve:	East side of Amazon Road and south of Otter Brook Road. Also West side of Amazon Road north of Otter Brook Road

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The graph below represents forest habitat conditions as of 2015, summarized from cover type data. The next update of the cover type maps and data is expected by 2025.



Deer Management Areas (DMAs)

Long-term monitoring of deer wintering areas is based on the percentage of mapped primary and secondary cover in mapped DMAs. Based on aerial imagery from 2014, DLLT has identified eight management areas totaling 19,836 acres. The objective is to have at least 25% of each DMA in primary cover, and at least 50% in primary and secondary cover combined. Due to heavy harvesting under previous ownership, none of the areas meet the state DWA cover criteria.

Deer Wintering Areas														
DMA	Primary		Secondary		Primary + Secondary		Future Secondary		Never Cover		NA		Total	Goals Met?
	%	ac	%	ac	%	ac	%	ac	%	ac	%	ac	ac	Yes/No
Amazon	8%	544	23%	1649	31%	2193	48%	3396	3%	212	18%	1255	7055	No
Belden Bk	43%	696	20%	335	63%	1031	23%	373	11%	177	3%	56	1637	Yes
Burroughs Bk	36%	323	33%	292	69%	615	21%	187	8%	73	2%	20	895	Yes
Bonney Bk	11%	202	4%	74	16%	276	43%	770	12%	215	13%	238	1775	No
Grand Lake Bk	22%	664	13%	398	36%	1062	58%	1727	0%	0	7%	201	2990	No
Hayes Bk	30%	639	24%	515	53%	1154	41%	887	3%	54	3%	63	2159	Yes
Wabassus	18%	424	13%	299	31%	723	53%	1232	12%	276	5%	106	2338	No
Whitney Cove	34%	339	28%	281	63%	620	35%	343	2%	18	1%	5	987	Yes
Grand Total	20%	3831	19%	3843	39%	7674	45%	8915	5%	1025	10%	1944	19836	No

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*Total cover includes all primary, secondary, and non-cover areas.

** GL Brook was increased to match acreage of marten management area

Section II includes a summary of annual management activities in DMAs.

American Marten

The management plan for American marten is based on maintaining large patches (i.e., over 1,200 acres) of mature forest. Monitoring is based on periodic inventories and cover type maps (i.e., every 10 years) to quantify habitat conditions.

Marten Habitat by Management Unit								
Unit	Total Area	Potential Habitat	Primary Habitat		Secondary Habitat		Current Habitat	
	acres	acres	acres	%	acres	%	acres	%
Amazon	7055	5818	4115	70%	696	12%	4810	82%

2015 Grouse and Woodcock Habitat Conditions

Belden Brk	1637	1581	1074	68%	466	29%	1540	97%
Bonney Brk	1733	1496	945	63%	476	32%	1422	95%
Burroughs Brk	895	837	594	71%	240	29%	834	100%
Grand Lake Brk	2990	2769	1884	68%	736	27%	2620	95%
Hayes Brk	2159	2024	1542	76%	313	15%	1855	92%
Wabassus	2338	2195	1435	65%	259	12%	1693	77%
Whitney Cove	987	967	515	53%	414	43%	929	96%
Total Acreage:	19794	17687	12104	68%	3600	20%	15703	89%

Grouse and Woodcock

Long term potential high-value grouse and woodcock habitat is indicated by the total area and balance of development stages in the aspen-birch forest type. This is only a portion of the total area of available habitat, because grouse may also be found in young and intermediate-aged northern hardwood and hardwood-dominated mixed forests.

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Management Unit	Focus Species Development Stage (ac)				Aspen-Birch Total	All Types Total
	Early Successional R/S	Early Successional S/SP	Intermediate	Mature		
Amazon	8	119	157	6	290	10,212
Bonney Brook		64	505	270	839	4,549
Dark Cove		121	57		178	4,746
Farm Cove	12	76	510		598	12,911
4 th Lake Ecological Reserve		62	372		434	3,696
LSMA	61	59	438		558	3,568
McLellan Cove			148		148	2,408
Wabassus		15	209	7	232	6,628
A-M Ecological Reserve	7	122	242		371	7,092
Aspen-Birch Total	88	638	2638	283	3648	
Total Forest Acres						55,930

Upon review of the updated cover type data, we determined that the acreage of aspen-birch forest has declined. The baseline (2005) data for Dark Cove, McLellan Cove, and Farm Cove had a total of 1,484 acres of aspen-b

irch forest type. That number has dropped to 924 acres. This is due to forest succession and harvesting practices. Many aspen-birch stands have developed significant shade tolerant conifer cohorts, making it difficult to justify retaining cover type.

DLLT is considering several options to preserve the presence of the forest type.

Black-throated Blue Warbler/Mature Hardwood Forest

Black-throated blue warbler is the focal species for older, intermediate, and mature northern hardwood forest. In 2005, about 60% of this forest type in the DLLT FCCF as a whole was in the early successional stage, and 6% was in the mature stage. The objective is to increase mature northern hardwoods to 15% of the total northern hardwood area by 2015 and 30% by 2025. . Currently, 36% of northern hardwood forest is in the early successional stage, which has increased. We also increased the TOTAL northern hardwood acreage on the DLCF. With the new total acreage, we have actually seen a slight decrease in mature hardwood acreage, in

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percent cover. If the original acreage is used to calculate current mature cover, then we have actually increased this to 7% mature cover.

It is believed that the increase in total acres in northern hardwood cover is due to forest succession, or possibly some minor mis-typing in forest types in 2005. It is also believed that the growth rates required to achieve mature northern hardwood status may have been underestimated.

An 8-acre crop tree release was initiated near Grand Lake Stream in T6ND. More than half of these acres remain to be treated. A few acres have been completed, and a kiosk explaining the treatment was installed near the main road.

Hard Mast Management

Long-term plans for hard mast include experimental planting of American chestnut and red oak by 2012. The plots and chestnuts planted prior to 2007 will be monitored.

Year	Number of plots	Year Planted	Type of Planting	Year Monitored	Results
Planted Prior to 2008	8	2006	Seedlings	2008	Qualitative inspection only; surviving seedlings appear healthy and have received only moderate browse pressure; survival appears better away from raspberry vines in old wood yards
2008					
2009					
2010					
2011					
2012					
2013					
2014					The planting of Chestnut is being reconsidered, but in a drastically different manor than before. Any future plantings will likely focus on red oak.
2015					
2016					
2017					
2018					
2019					
2020					
2021					Planted 8 Red Oak and 8 White Oak in conventional harvest area near gardner Brook.

Rare Species, Natural Communities, and other Special Habitats

During 2002-2003 DLLT contracted with Dr. Norm Famous and Janet McMahon to inventory the anticipated DLLT acquisition lands for the presence of rare, threatened, or endangered wildlife and plant species. The final report and recommendations were completed in August of 2007. Additional information, including a list of rare species that could potentially be observed on the Community Forest, was requested and received from the Maine Natural Areas Program, and is summarized in the Farm Cove Community Forest Management Plan (2008). The Wabassus Tract was acquired in 2009, and a focus species plan was developed in 2010. With the acquisition of the West Grand Lake Tract in 2016, DLLT decided to combine all management into a single document, the Downeast Lakes Land Trust Forest Management Plan (2015). DLLT's approach is to protect species by protecting their habitat, including areas designated as special management areas, late-successional forest, and ecological reserve. Monitoring for general conditions or unintended adverse impacts occurs primarily during forest harvest operations planning, and implementation when harvests occur near or in special management areas.

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