

**Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection, Office of Watershed Management
*Forest Management Project Summary***

Project Title: Lot 5262

DWSP Harvest Permit Number: 5262

DWSP Proposal ID: WA-16-233

DCR Forest Cutting Plan File Number: 282-8229-16

Site Information

Watershed: Wachusett

Town(s): Sterling

Acres: 68

Nearest Road: Newell Hill Road

Natural Heritage Atlas overlap?: No

Public Drinking Water Supply Watershed?: Yes

Forest Types: Northern Red Oak

Area of Critical Environmental Concern (ACEC)?: No

Soils: Chatfield-Hollis-Rock outcrop complex

Wetland Resources: A small stream forms the western boundary of the sale area. A very small stream form a portion of the eastern boundary.

Vernal Pools: There is a large vernal pool high up on the hill in the middle of this area. There are two other vernal pools in the bottom of the ravine along the eastern boundary of this area.

Harvest Information

Harvest Start Date: 4/12/2017

Harvest End Date: 6/28/2019

Number of Wetland Crossings: None

Number of Stream Crossings: None

Best Management Practices Applied

Stream Crossings: There are no stream crossings.

Filter Strips: No trees are marked in any of the filter strips.

Wetland Crossings: There are no wetland crossings.

Harvesting in Wetlands: No harvesting in wetlands will occur.

DWSP Forester supervising this harvest

Name: Greg Buzzell

Forester License number: 025

Phone number: 774-261-1841

Email: greg.buzzell@mass.gov

Narrative

General Description/Forest Composition/History

This area is dominated by a 105 year old red oak stand comprised primarily of red oak and a lesser component of white pine, black birch, red maple, hickory, white oak, hemlock and sassafras. On the lower slopes, especially to the west nearing a small red maple stand, there is a component of sugar maple, elm and yellow birch. In and near the red maple stand the overstory is comprised primarily of red maple, white ash, black cherry and elm.

The southern half of this area was cut by the MDC in 2002. The primary purpose was to begin the establishment of regeneration. At the same time, where advance regeneration was adequate, a few, very small openings totaling about 1 acre were created. Prior to this, the main disturbances to this site were the gypsy moth population explosions in the late 1980s and a forest fire in 1999. The gypsy moth infestation resulted in the death of most of the hemlocks which were scattered throughout this area and it had the effect of encouraging the establishment of regeneration by thinning the overstory through defoliation allowing more sunlight to reach the forest floor. The oak stand itself was also very lightly thinned through the mortality of the individual trees of weakest vigor. The fire, which occurred on April 8th, 1999, was an unusually severe fire for this part of Massachusetts and occurred in an unusually dry spring. Nearly 20 acres in this working unit were burned with almost complete overstory mortality in three areas totaling nearly 3.5 acres. These areas are now well-stocked young stands of oak, hickory, red maple and white pine.

As a result of these two disturbances, there is good advance regeneration throughout the area. There was adequate advance regeneration on 71% of 107 plots taken with marginal regeneration on an additional 14% of the plots. The composition of the regeneration is more diverse than the red oak-dominated overstory although oak regeneration is present on 76% of the plots. In addition to oak, the regeneration is dominated by white pine, white oak, red maple, black birch and hemlock with lesser numbers of hickory, sugar maple, beech, sassafras and eastern hophornbeam.

Site Selection

The ideal watershed protection forest is one which best serves the function of the land as a producer of high quality drinking water in both short- and long-term. This forest must be vigorous and diverse in tree species and ages, be actively accumulating biomass and actively regenerating. Such a forest will be ideally suited to be resilient to and quickly recover from small- and large-scale disturbances such as diseases, insect infestations, ice storms and hurricanes.

This area was chosen due to the lack of age diversity both in these 68 acres as well as the 1,007 acres owned by the DCR that flows into West Waushacum Pond and Waushacum Brook.

Silvicultural Objectives

Given the good advance regeneration present, openings will be made to release this regeneration resulting in a new age cohort. Twelve openings will be made that range in size from 0.2 to 2.0 acres, averaging about 0.9 acres in size. These openings total 10.4 acres which represents 15% of the manageable acreage in this area. They are well distributed throughout the sale area taking advantage of the areas of diverse regeneration.

Cultural Resources

This proposal has been reviewed by the DCR Archaeologist and all recommendations will be followed to minimize the risk of disturbance to both historic and archaeological resources.

Rare or Endangered Species

All DWSP CMPs regarding the protection of vernal pools will be followed. These include keeping main haul roads well away from the pools and maintaining a shaded condition within 100 feet of the pools.

Figures

- Figure 1. Forest Cutting Plan
- Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features
- Figure 3. General locus map showing the location of the proposed timber harvest
- Figure 4. Pre-Harvest Photographs, A-D
- Figure 5. Post-Harvest Photographs, A-C

Figure 1. Forest Cutting Plan

Forest Cutting Plan

and Notice of Intent under M.G.L.
Chapter 132 – The Forest Cutting
Practices Act, 304 CMR 11.00 **MAY 26 2016**
(Effective Date: 1/1/04)

For DCR Use Only:

File Number 372-829-16 Case No. _____
Date Rec'd 5/24/16 Nat. Hert. NO
Earliest Start 8/10/16 Nat. Hert. Imp. NO
River Basin Nashua Pub. Dr. Wat. YES-WACHUSETT
Gen. Obj. LT ACEC NO

Site Information

Location

Town Sterling Lot 5262
Road Newell Hill Rd.
Acres 68 Proposed Start Date 7/1/16
Vol. MBF 24.9 Vol. Cds. 162 Vol. Tons 2

Plan Preparer

Name Gregory S. Buzzell
Address 180 Beaman Rd.

Town, State, Zip West Boylston, MA, 01583
Phone 508-792-7806 Ext 317
Type of Preparer Mass. Licensed Forester
*Mass. Forester License # 25
*Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR/DWSP/OWM Wachusett/Sudbury
Mailing Address 180 Beaman St.

Town, State, Zip West Boylston, MA 01583
Phone 608-792-7806
Ch61 Ch61A Stew *Case # _____
Est. Stumpage Value _____

Licensed Timber Harvester**

Name To be supplied when known.
Address _____
Town, State, Zip _____
Phone _____
Mass. Lic. Harvester # _____
**This information may be supplied after the plan is approved, but before work begins.

Best Management Practices

Stream Crossings

Indicate location on map	SC-1	SC-2	SC-3	SC-4
Type of Crossing				
Existing Structure				
Type of Bottom				
Bank Height (ft)				
Stabilization				

Wetland Crossings

Indicate location on map	WC-1	WC-2	WC-3	WC-4
Length of Crossing				
Mitigation				
Stabilization				

Filter Strips

Indicate location on map	FS-1	FS-2	FS-3	FS-4
Width (50', 100', or VA)	VA	VA	VA	

Harvesting in Wetlands

Indicate location on map	HW-1	HW-2	HW-3	HW-4
Forest Type (see pg 2)				
Acres to be Harvested				
Resid. Basal Area (>50%?)				

Service Forester Comments

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom
LF Mass. Lic. For.	CU Culvert	SE Seed	FR Frozen	LE Ledge
TH Lic. Tim. Har	BR Bridge	MU Mulch	DR Dry	ST Stony
TB Timber Buyer	FO Ford	CO Corduroy	OT Other	MU Mud
LO Landowner	PO Poled	ST Stone		GR Gravel
OT Other	OT Other	HB Hay Bales		OT Other
		OT Other		

Note:
Applicant must provide DCR with all relevant information before plan may be approved and cutting may begin. Some forestry activities, such as prescribed burning and pesticide or fertilizer application may require additional permits. Consult MA Forestry BMP Manual for further information.

Forest Products

Products to be Harvested*

Species	Mbf/Cds		Mbf/Cds
White Pine	0.7	Red Maple	
Red Pine		Sugar Maple	
Pitch Pine		Red Oak	19.9
Hemlock		Black Oak	4.3
Spruce		White Oak	
Other Sftwd.		Other Hdwd.	
White Ash		Total Mbf	24.9
Beech		Cordwood (Cds)	162
White Birch		SW Pulp (Tons)	2
B & Y Birch		HW Pulp (Tons)	
Black Cherry		Chips (Tons)	

*Note: Volumes and values indicated in the Plan are as reported by the plan preparer and have not been independently verified by the service forester upon approval. Mbf = thousand board feet.

Stand Treatment

Cutting Standards

Indicate location on map	ST-1	ST-2	ST-3	ST-4
Forest Type	OR			
Acres	68			
Landowner Objective	LT			
Designation of Trees	CT			
Type of Cut	SH			
Source of Regeneration	AD			

Landowner

Landowner Signature

The most important information on a cutting plan is the Landowner's objective, as this will determine which trees will be harvested and which will remain; **this decision will also determine the future condition of the forest for decades to come.** After having read the Massachusetts Forest Cutting Plan Information Sheet on page one, indicate your objective by checking the appropriate box below.

LT - Long-term Forest Management

Planned management of the forest to achieve one or more of the following objectives: produce immediate and maximize long-term income, enhance wildlife habitat, improve recreational opportunities, protect soil and water quality, or produce forest specialty products.

ST - Short-term Harvest

Harvest of trees with the main intention of producing short-term income with minimal consideration given to improving the future forest condition, which often results in a forest dominated by poor quality and low value species.

I (we) have read the Massachusetts Cutting Plan Information Sheet, and am aware of my (our) management options.

I (we) hereby certify that I (we) have the legal authority to carry out the operation described above.

I (we) certify that I (we) have notified the Conservation Commission in the town in which the operation is to take place and the abutters of record within two hundred feet of the area to be harvested.

I (we) understand that the volumes and values (Ch61 only) in this plan have not been independently verified by the service forester upon approval and will report final values and volumes to the Director or his/her agent if the final figures differ from those reported.

Signature of landowner(s)

5/25/16
Date

Service Forester

Determination and Status

Approved Disapproved Expires 5-26-2018

Signature of Service Forester/Director's Agent 6-2-2016 Date

Extension 1 2 Expires / Ser. For. Ints. /

Amendment App 1 Dis 1 App 2 Dis 2 /

Final Report and Comments

I hereby certify that the afore described Forest Cutting Plan and all relevant statutes have been substantially complied with.

Signature of Service Forester/Director's Agent _____ Date _____

Codes

Forest Types	Designation of Trees	Type of Cut	Source of Regeneration
WP White Pine	CT Cut Tree	SH Shelterwood	AD Advanced
WK WP/Hem	LT Leave Tree	ST Seed Tree	SE Natural Seed
WH WP/Hdwd	SB Stand Boundary	CC Clear Cut	PL Plant
WO WP/Oak	OT Other	SE Selection	CO Coppice
RP Red Pine	Landowner Objective	SA Salvage	DS Direct Seed
SR Red Spruce	LT Long-term Mgt.	SN Sanitation	OT Other
	ST Short-term Har.		
		Intermediate Harvests:	
		CT Commercial Thin	
		NT Non Com Thin	
		Non-Standard Systems:*	
		HG Highgrade*	
		DL Diameter Limit*	
		OT Other*	

Forest Cutting Plan

Narrative Page

Use only if further explanation is required of information on pages one or two or if "other" was used in any category.

Landowner: DCR/DWSP

Town: Sterling

File Number: 282-8229-16

BMPs	<u>There are no stream or wetland crossings in this lot.</u>
Silviculture	<u>In order to release advance regeneration, 12 openings in the overstory are being created, covering 10.4 acres. These openings range from 0.2 acres to 2.0 acres in size with an average of 0.9 acres. They are well distributed throughout the sale area taking advantage of the advance regeneration comprised of white pine, oaks and other hardwoods.</u> <u>Trees are only being cut in the areas of overstory removal.</u>
Objectives	<u>The main objective of this operation is to diversify the age structure of the forest by removing the overstory in patches thereby releasing the advance regeneration. The current age structure is limited with an insufficient component of young forest. A secondary objective is to target pine regeneration for release.</u>
Other	<u>A forwarder trail has only been flagged from the landing to the first two openings up the hill. Topography greatly limits where equipment can reasonably travel along with the absence of stream or wetland crossings and regular DWSP Forester oversight making further flagging unnecessary.</u>

Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features

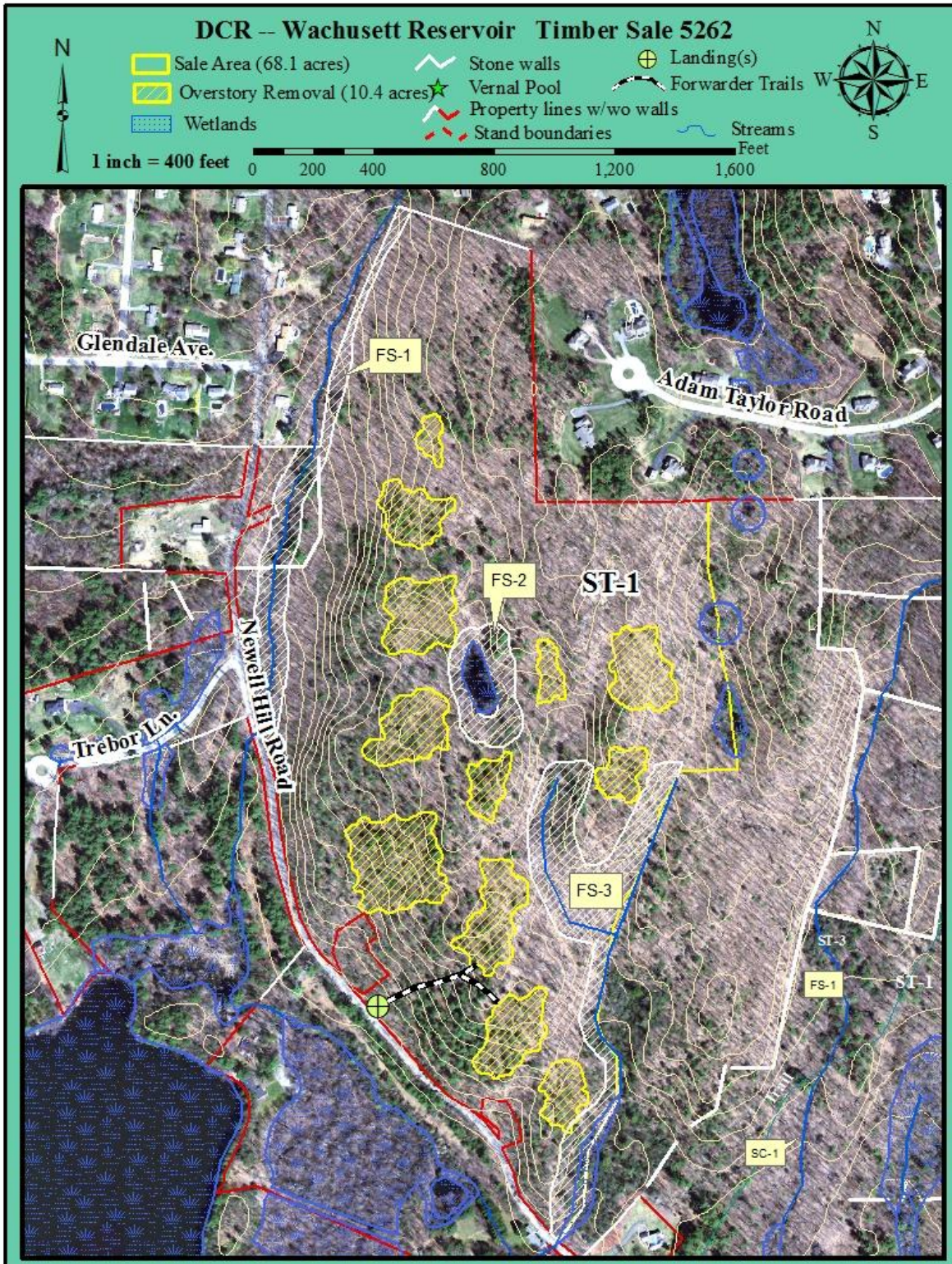


Figure 3. General locus map showing the location of the proposed timber harvest

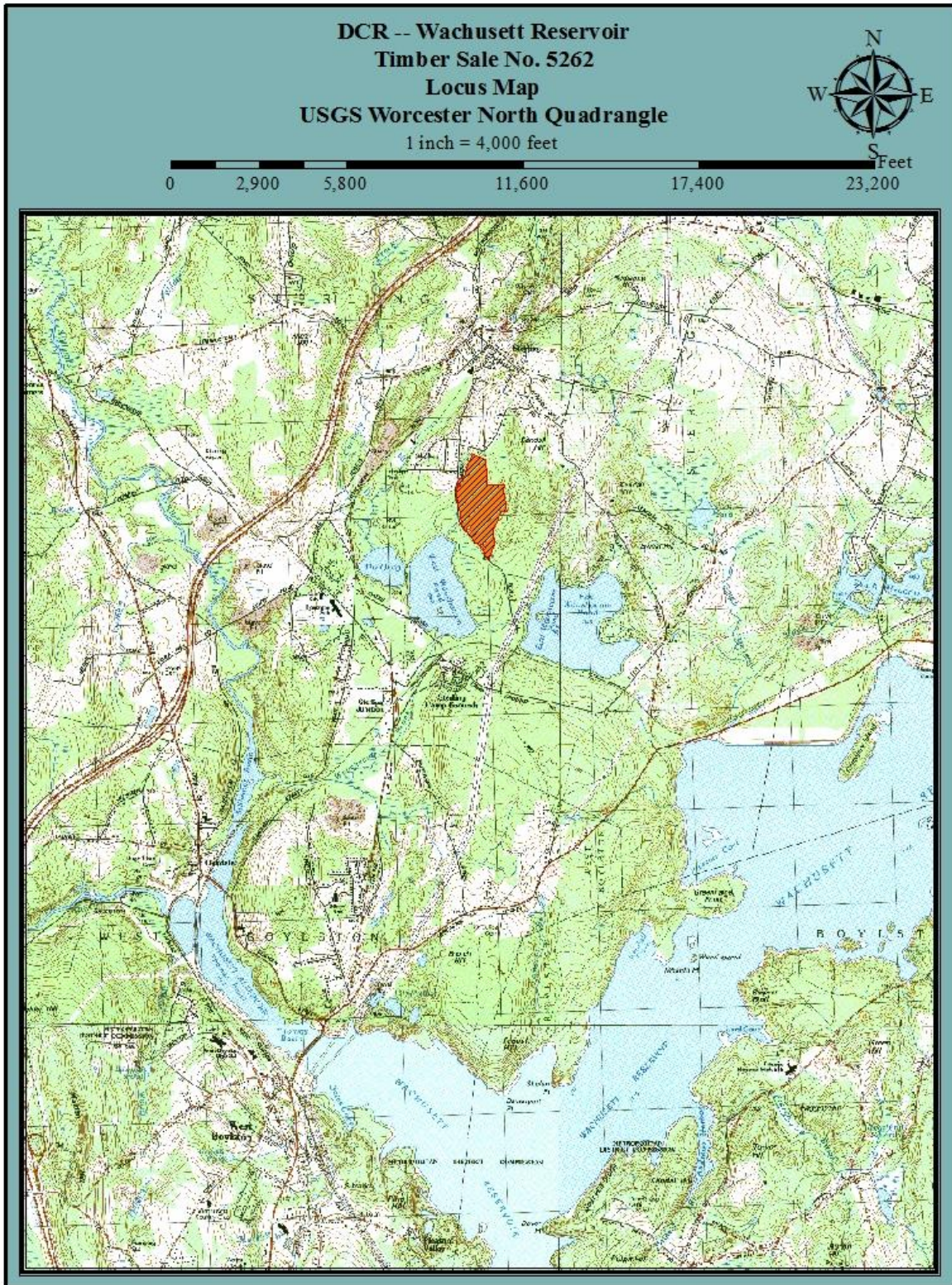


Figure 4. Pre-Harvest Photographs, A-D



A. The landing on Newell Hill Road. This is the same landing location that was used for a previous operation in 2002.



B. An opening is being made here to release the excellent understory of pine, oak and maple.



C. This small gap was created by the cutting in 2002. The regeneration that was established will now be released by enlarging this small gap. Note the large red oak just to the right of the center of the photo. This tree is being retained to provide long-term structural diversity which has a wide range of benefits.



D. This tiny pond, while perennially wet, is a functioning vernal pool. It is perched high up on the hill and has no inlet or outlet.

Figure 5. Post-Harvest Photographs, A-C



A. One of the patches of overstory removal thus creating an area of young forest. The oak tree in the middle of the photo was intentionally retained to provide added structural diversity.



B. Another area where the older trees are removed in order to give the young trees the room and light they need to thrive.



C. The chunks of oak trees visible in the foreground of this photo show the quality of many of the oaks in this area. These rotten and hollow trees are due to both carpenter ant infestations which are common on this thin-soiled, rocky sites as well as a serious forest fire in 1999 which killed many trees and scarred others which leads to internal decay.