

TRIGAH OLD GROWTH 40 ft. x 20 ft. August 15 1944

Tally of individual trees in plot

DBH	Number	Species	Height	DBH	Species	Height
18"	6	YAC	5'	5"	YAC	10'
20"	8	YAC	5'	5"	YAC	10'
21"						
23"						
24"						
25"						
26"						
27"						
28"						
29"						
30"						
31"						
32"						
33"						
34"						
35"						
36"						
37"						
38"						
39"						
40"						

Remarks: Plot is less south of the top of the hill  
 about 200 feet on ridge top  
 Talled by R. Fellows and Paul Mad-fro

HF

NATURAL REPRODUCTION ON THE  
PISGAH TRACT, 1942

In Winchester, New Hampshire, Harvard University owns a twenty acre tract of primeval forest. This stand, one of a number in the locality that has been studied intensively (Cline and Spurr, 1942), was completely blown down in 1938. In the summer of 1942, four growing seasons after the hurricane, a transect was run from the top of the ridge dominating the east portion of the tract southwest across the topography to the end of the blowdown timber. Seventy mil-acre plots were tallied by the stock-quadrat method.

Conditions following blowdown on this virgin timber tract differed very greatly from those on second growth areas. The tangled blowdown of heavy timber (largely hemlock and white pine) was four to ten feet thick over most of the area. Under this criss-cross of logs, the soil was moist and relatively undisturbed except around the uprooted stumps. The boles of the fallen trees covered over 30% of the area, and inasmuch as most of these were suspended several feet from the ground, they affected practically all the surface. Mineral soil was exposed in stump pits on about 8% of the area. Rock outcrops, either naked or covered by a thin organic layer were prominent on another 15% of the transect. Wet Whitman soil covered somewhat less than 5% of the area, the remainder being a shallow phase of Hermon.

The tree reproduction differed as between high slopes and low slopes (Table 1). On the high slopes (26 plots), seedlings of paper birch, red maple, black cherry and black birch predominated. Little advance growth of any kind had persisted. The stand on the low slopes<sup>(44 plots)</sup>, however, was dominated by hemlock and beech advance growth. Seedlings of other species were present but most seemed likely to be soon overtopped. Yellow birch occurred instead of the black birch of the high slopes.

The beech recorded was all advance growth except for one seedling. About 60% of the hemlock consisted of advance growth, most of this occurring on low slopes. The advance growth ~~was~~ ranged up to 10 and 15 feet in height and much of it had persisted for many years under the old stand. Hemlock seedlings were equally as common on high as on low slopes. The other trees present consisted almost entirely of seedlings which had germinated since the hurricane. Paper birch dominated areas of exposed mineral soil although black birch and black cherry also occurred there. Noticeable was the absence of pin cherry, aspen and gray birch.

The ~~so~~ <sup>so</sup> ~~cont.~~

Ground cover noted included:

<i>Thelypteris intermedia</i>	<i>Rubus idaeus aculeatissimus</i>
<i>T. spinulosum</i>	<i>Rubus villosus</i>
<i>T. cristatum</i>	<i>Rubus</i> spp. (blackberry)
<i>Athyrium felix-femina</i>	<i>Vitis</i> sp.
<i>Polypodium vulgare</i>	<i>Aralia hispida</i>
	<i>Aralia nudicaulis</i>

*Viburnum alnifolium*  
*Viburnum dentatum*  
*Corylus rostrata*  
*Acer pennsylvanicum*  
*Gaultheria procumbens*  
*Maianthemum canadense*  
*Kalmia latifolia*  
*Solidago* spp.

Starting at top of ridge at end of trail at a  
 9 foot, 10 inch diam. spruce stub. Line bearing S87W  
 toward pine snag (34") snag at plot 65.

✓ = seedling  
 X = advanced growth

Ridge top	PB	BC	RM	H	Be		BB	YB
1			✓					
2	✓							
3	✓							
4	✓	✓					✓	
5	✓	X					✓	
6	✓						✓	
7	✓						✓	
8	✓	✓		✓				
9	✓		✓					
	88	22	22	11			33	
	8	2-1	2	1			3	
High slope								
10		✓		X				
11				X				
12		✓	✓					
13	✓			X				
14	✓							
15	✓							
16			✓				✓	
17	✓	✓	✓		X		✓	
18	✓	✓	✓		✓		✓	
19		✓	✓	✓			✓	
20	✓	✓	✓				✓	
21	✓	✓	✓				✓	
22	✓	✓	✓	✓		RS ✓	✓	
23	✓	✓	✓	✓			✓	
24				✓				
25			✓		X			✓
	59	47	53	47/30	12	6	53	6
	10	8	9	5-3	1-2	1	9	1
Mid-slope								
27	✓				X			
28								
29	✓		✓					
30	✓							
31				X			✓	
32	✓			X	X			
33	✓			X				
34								
35	✓			✓			✓	
36				X				
	60		10	40	20		20	
	6		1	1-4	0-2		2	

	6	-	1	1-4	0-2		2	
	PB	BC	RM	H	Be		BB	YB
Low slope								
37		✓	✓					
38	✓							
39		✓						
40	✓	✓				RO ✓		
41	✓		✓	X				
42	✓			X	X			
43				✓	X	RO ✓		
44					X			
45				X	X			
46			✓	X	X			
47				X	X			
48				X	X			
49				X				
Bottom	31%	23	23	54	54	15		
50	✓	✓						✓
51	✓							
52	✓							✓
53				X				
	75	25		25				50
Low slope								
54	✓			✓				✓
55				X	X			
56		✓		X			✓	
57		✓						
58	✓		✓	✓		GB ✓		
59	✓	✓	✓	✓				
60	✓		✓	✓				✓
61			✓	X				✓
62				X				
63								
64				✓				
65								
66	✓		✓					
67	✓							
68	✓		✓			WP ✓		
69	✓			✓	X	WP ✓		✓
70				X	X			X
	62	23	13	85 4-16	23	15/7	7	38
	31	17-7	21	14-19	1-14	RS 1 GB 1 WP 2 RU 2	15	7-1

COMPOSITION OF OLD STAND

Plot size

Species	Standing				Down			
	4-8	8-12	12+	All	4-8	8-12	12+	All
Beech								

REPRODUCTION TALLY

No. of plots  $\begin{matrix} 10 & 10 \\ 10 & 10 \end{matrix}$

Species	Seedlings	Seedling sprouts	Stem sprouts	Advanced Growth	Total
Pine	2				2
Hemlock	28			11	39
Spruce					
Balsam					
Aspen					
LT aspen					
Willow					
Hickory					
Gray birch					
Paper birch	23			5	28
Black birch	5	1		3	9
Yellow birch	29			8	37
Beech	19			8	27
Chestnut					
Red oak	1			1	2
White oak					
Elm					
Black cherry	3				3
Pin cherry	15			1	16
Sugar maple					
Red maple	28			7	35
White ash					
Black ash					
No reproduction					

☒☒  
☒

NATURAL REPRODUCTION  
STUDY

Block  
Comp.  
Stand  
Map of *Pisgah*

Case  
Date *8-3-43*  
Party *SHS EB*

*Westerly strip*

SITE

Act. elevation *1000*  
Rel. elevation  
Aspect *0*  
Slope *0*

Soil type *Heron*  
Soil moisture  
Seed bed  
Min. soil  
Slash  
Humus

PREVIOUS STAND

Type *WP-HEM*  
Percent destroyed *100*  
Stand history

Trees per A.  
Size of opening *40 Acres*  
Age *250+*

Salvage and clean-up *0*

No treat.   
Logged  
Cordwood  
Brush dis.

GROUND COVER

Density  
0- 25%  
25- 50  
50- 75  
75- 100

Composition *Striped maple*

NOTES

SKETCH

Memorandum Concerning the Vegetation Now Present  
in the Pisgah Tract Owned by Harvard University  
August 3, 1943

*Pinus grandifolia*

The tree reproduction now present on the tract which prior to September 21, 1938 supported an essentially virgin stand of white pine is mostly hardwood and hemlock. Very little white pine reproduction is coming in. Most of the hardwoods on the area evidently were present as advance growth under the old pine stand. Some species, e.g. white birch, black birch, yellow birch and fire cherry have undoubtedly come in since the stand was destroyed by the hurricane.

The following species were identified on the slope and in the swampy depressions.

*Aralia nudicaulis* L.

*Acer rubrum* Michx. - found on ridge only.

*Acer pennsylvanicum*

*Aster acuminatus* Michx.

*Amelanchier canadensis*

*Aralia hispida*

*Aspidium spinulosum* var. *intermedium* (Muhl.) D.C. Eaton.

*Betula papyrifera*

*Betula lutea*

*Clintonia borealis* (Ait.) Raf. - found on ridge only.

*Coptis trifolia* (L.) Salisb.

*Cornus canadensis* L.

*Chimaphila umbellata* (L.) Nutt.

*Corydalis sempervirens* (L.) Pers. - found on ridge only.

*Diervilla lonicera* M. l. - found on ridge only.

*Dicksonia punctilobula* (Michx.) Gray.

- Erechtites hieracifolia (L.) Raf.
- Fagus grandifolia
- Fraxinus americana
- Gaultheria procumbens
- Hamamelis virginiana
- Ilex verticillata - found in swamp only.
- Iris versicolor - found in swamp only.
- Lonicera canadensis
- Medeola virginiana
- Mitchella repens
- Maianthemum canadense
- Nemopanthus mucronata
- Nyssa sylvatica
- Osmunda cinnamomea - found in swamp only.
- Polygonum cilinode
- Prunus pennsylvanica
- Polypodium vulgare
- Pinus strobus
- Picea rubens
- Pteris aquilina
- Prunus serotina
- Polygonatum biflorum - found only on ridge.
- Quercus borealis var. maxima
- Rhus typhina
- Ribes prostratum L'Her.
- Rubus hispidus - found only in swamp.
- Rubus idaeus var. aculeatissimus (C.A. Mey.) Regel & Tiling.
- Sambucus racemosa
- Sambucus canadensis

*Trientalis americana*

*Trillium undulatum*

*Tsuga canadensis*

*Vaccinium corymbosum* - found only in swamp.

*Vaccinium pennsylvanicum*

*Viburnum alnifolium*

*Viburnum cassinoides*

H. J. Lutz

Yale School of Forestry

NATURAL REPRODUCTION ON THE  
PISGAH TRACT, 1942

In Winchester, New Hampshire, Harvard University owns a twenty acre tract of primeval forest. This stand, one of a number in the locality that has been studied intensively (Cline and Spurr, 1942), was completely blown down in 1938. In the summer of 1942, four growing seasons after the hurricane, a transect was run from the top of the ridge dominating the east portion of the tract southwest across the topography to the end of the blowdown timber. Seventy mil-acre plots were tallied by the stock-quadrat method.

Conditions following blowdown on this virgin timber tract differed very greatly from those on second growth areas. The tangled blowdown of heavy timber (largely hemlock and white pine) was four to ten feet thick over most of the area. Under this criss-cross of logs, the soil was moist and relatively undisturbed except around the uprooted stumps. The boles of the fallen trees covered over 30% of the area, and inasmuch as most of these were suspended several feet from the ground, they affected practically all the surface. Mineral soil was exposed in stump pits on about 8% of the area. Rock outcrops, either naked or covered by a thin organic layer were prominent on another 15% of the transect. Wet Whitman soil covered somewhat less than 5% of the area, the remainder being a shallow phase of Hermon.

The tree reproduction differed as between high slopes and low slopes (Table 1). On the high slopes (26 plots), seedlings of paper birch, red maple, black cherry and black birch predominated. Little advance growth of any kind had persisted. The stand on the low slopes<sup>(44 plots)</sup>, however, was dominated by hemlock and beech advance growth. Seedlings of other species were present but most seemed likely to be soon overtopped. Yellow birch occurred instead of the black birch of the high slopes.

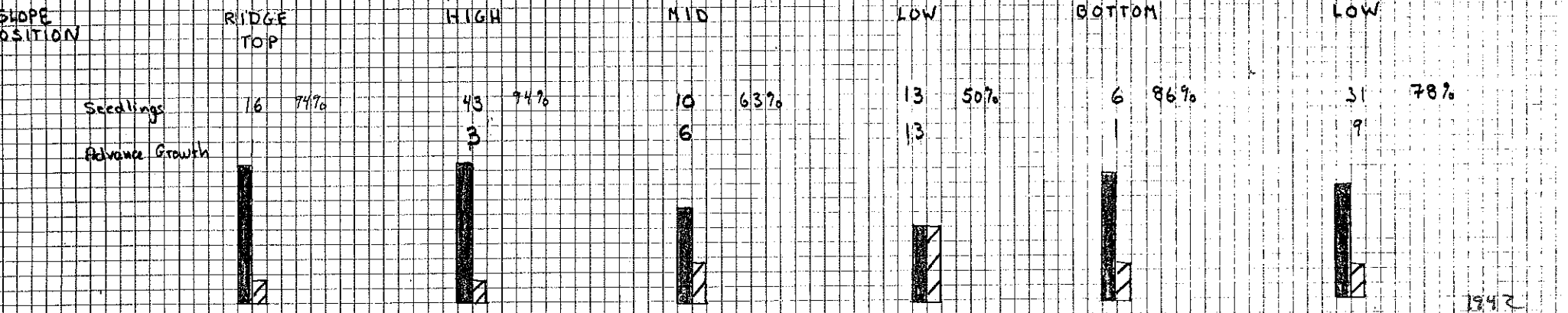
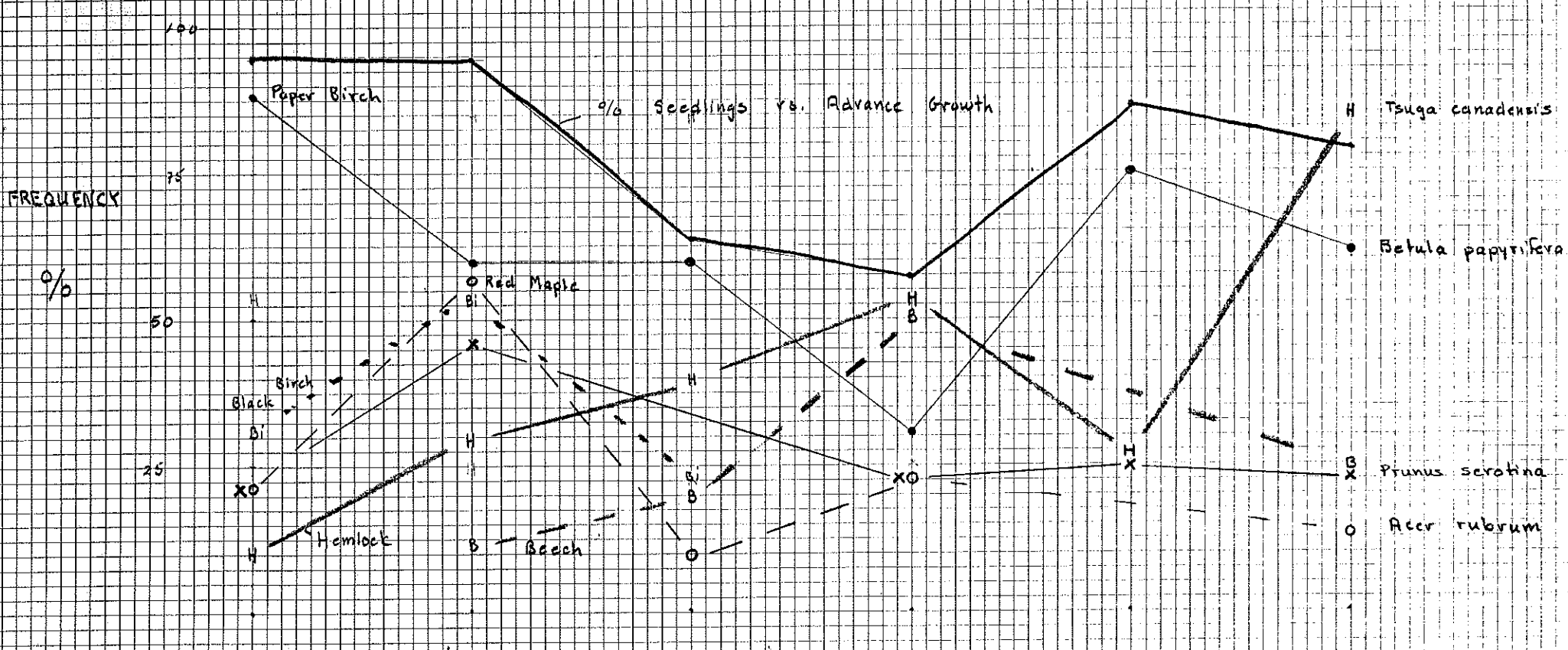
The beech recorded was all advance growth except for one seedling. About 60% of the hemlock consisted of advance growth, most of this occurring on low slopes. The advance growth ~~was~~ ranged up to 10 and 15 feet in height and much of it had persisted for many years under the old stand. Hemlock seedlings were equally as common on high as on low slopes. The other trees present consisted almost entirely of seedlings which had germinated since the hurricane. Paper birch dominated areas of exposed mineral soil although black birch and black cherry also occurred there. Noticeable was the absence of pin cherry, aspen and gray birch.

Ground cover noted included:

<i>Thelypteris intermedia</i>	<i>Rubus idaeus aculeatissimus</i>
<i>T. spinulosum</i>	<i>Rubus villosus</i>
<i>T. cristatum</i>	<i>Rubus</i> spp. (blackberry)
<i>Athyrium felix-femina</i>	<i>Vitis</i> sp.
<i>Polypodium vulgare</i>	<i>Aralia hispida</i>
	<i>Aralia nudicaulis</i>

*Viburnum alnifolium*  
*Viburnum dentatum*  
*Corylus rostrata*  
*Acer pennsylvanicum*  
*Gaultheria procumbens*  
*Maianthemum canadense*  
*Kalmia latifolia*  
*Solidago* spp.

White Pine 2  
 Red Oak 2  
 Red Spruce 1  
 Yellow Birch 2 5



What about this? 1942 SPURR - DATA





NATURAL REPRODUCTION  
STUDY

Block  
Comp.  
Stand  
Map of *Pisgah*

Case  
Date *8-3-43*  
Party *SNS EB*

*Westerly strip*

SITE

Act. elevation *1000*  
Rel. elevation  
Aspect *0*  
Slope *0*

Soil type *Hermon*  
Soil moisture  
Seed bed  
Min. soil  
Slash  
Humus

PREVIOUS STAND

Type *WP-HEM*  
Percent destroyed *100*  
Stand history

Trees per A.      Age *250+*  
Size of opening *40 Acres*

Salvage and clean-up *0*

No treat. ✓  
Logged  
Cordwood  
Brush dis.

GROUND COVER

Density  
0- 25%  
25- 50  
50- 75  
75- 100

Composition *Striped maple*

NOTES

SKETCH

COMPOSITION OF OLD STAND

Plot size

Species	Standing				Down			
	4-8	8-12	12+	All	4-8	8-12	12+	All
Beech								

REPRODUCTION TALLY

No. of plots <sup>10</sup>/<sub>10</sub> <sup>10</sup>/<sub>10</sub>

Species	Seedlings	Seedling sprouts	Stem sprouts	Down	Total
Pine	2				2
Hemlock	28			11	39
Spruce					
Balsam					
Aspen					
LT aspen					
Willow					
Hickory					
Gray birch					
Paper birch	23			5	28
Black birch	5	1		3	9
Yellow birch	29			8	37
Beech	19			8	27
Chestnut					
Red oak	1			1	2
White oak					
Elm					
Black cherry	3				3
Pin cherry	15			1	16
Sugar maple					
Red maple	28			7	35
White ash					
Black ash					
No reproduction					