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Contents

INTRODUCTION

The soils reported in this bulletin have developed in several different parent materials. The Danforth soil has developed from very deep, well drained, loose, high coarse fragment till derived from slate and fine grained metasandstone. The Elliottsville soils have developed in moderately deep, well drained till derived from slates, metasandstones, phyllite and schists. The Penquis soils developed in moderately deep, well drained till of similar lithology as Elliottsville, but with a higher component of weathered and crushable rock fragments throughout the soil profile. Peacham soils are developed in very deep, very poorly drained, dense till derived from phyllite, schist, and granite.

The texture of Danforth and Peacham soils is loamy and averages less than 50% silt. The silt component of Elliottsville and Penquis soils averages more than 50%. Danforth soils also have a high coarse fragment volume below 25 cm. The major difference between Elliottsville and Penquis soils is the high percentage of crushable coarse fragments throughout the Penquis soil profile.

Danforth and Elliottsville soils are mapped in northern and central Maine. Penquis soils are mapped only in central Maine. Peacham soils are mapped in central and southern Maine. Penquis soils have been used extensively for potato and corn production, but many acres are reverting to forest. The Danforth, Elliottsville, and Peacham soils are predominantly managed for forests.

MATERIALS

The Danforth soil series is well drained. It is very deep to bedrock and has a high content of rock fragments. These soils are in mid to lower slope positions in the landscape where they may receive materials moving down the slope. Their morphology is not influenced by excessive amounts of laterally flowing water because of the relatively pervious nature of the soil profile. It is possible that much of the material in the soil profile accumulated from upslope positions through erosion during periods of sparse vegetation.

The Elliottsville soil series is well drained and moderately deep to bedrock. Its upper or sloping landscape position means that water does not accumulate for periods of time in the soil. There are no morphologic indicators of impeded drainage. Plant roots may penetrate the profile from the mineral surface to bedrock.

The Peacham soil series is very deep to bedrock, very poorly drained, and occupies depressional or seepage positions in the landscape. It has a dense, root-restricting layer beginning at depths ranging from 32 to 52 cm. This dense zone is effective in slowing water movement and assures that the soil profile is dominated by redoximorphic features.

The Penquis soil series is moderately deep to bedrock, well drained, and is found on knolls and sloping positions of the landscape. Rock fragments within the soil profile are frequently soft enough to be broken by crushing in hand. Slopes are often not as steep as those in the Elliottsville soil series, and as a consequence, the soil is adaptable to farming. The moisture storage and rooting depths are adequate for many crops suitable to central Maine growing seasons.

The Danforth soils were first described in Maine during the Aroostook County soil survey in 1942, but were never correlated and officially recognized until 1982 in northern Somerset County. Danforth soils are currently recognized in the soil surveys of Piscataquis, Somerset, Franklin and Oxford counties. The Elliottsville soil series was included with the Thorndike or Lyman soil series in earlier soil mapping in Maine, but was separated from them in the more recent surveys of Piscataquis, Franklin, Somerset, Oxford, and the proposed revision of Penobscot counties. They have been separated to improve soil interpretation and use in the more recent soil surveys. Peacham soils are recognized in the soil surveys of Oxford, Franklin, Piscataquis, Somerset, Hancock, and Washington counties. They are sandier than the Burnham, Biddeford, or Washburn soils mapped in Maine and have similar drainage. Penquis soils were mapped as "Bangor moderately deep" in the Penobscot soil survey (Goodman et al. 1963). However, as the Maine soil survey progressed in following years, it was desirable to identify a soil of moderate depth and good agricultural characteristics (Penquis) as a unique soil series that would replace the "Bangor moderately deep" soil map unit.

These soil series are classified according to Soil Taxonomy (Soil Survey Staff, 1992) in Table 1. The classification presented in Table 1 reflects changes in soil taxonomy through the 1994 taxonomic keys. The classification of the soil map units in Table 2 presents the occasional taxonomic deviation of the map units from that of the official soils description.

Table 1. Taxonomic classification of the soil series that form the basis of the soil map units in this study.

Soil Series	Family Name
Danforth	loamy-skeletal, mixed, frigid Typic Haplorthods
Elliottsville	coarse-loamy, mixed, frigid Typic Haplorthods
Peacham	coarse-loamy, mixed, nonacid, frigid Histic Humaquepts
Penquis	coarse-loamy, mixed, frigid Typic Haplorthods

Table 2. Taxonomic placement of the soil map units in this study.

Soil Map Unit[1]		Family Name
Danforth	110–190	loamy-skeletal, mixed, frigid Typic Haplorthods
Danforth	110–290	loamy-skeletal, mixed, frigid Typic Haplorthods
Danforth	130–190	loamy-skeletal, mixed, frigid Typic Haplorthods
Danforth	130–290	loamy-skeletal, mixed, frigid Typic Haplorthods
Danforth	130–390	coarse-loamy, mixed, frigid Typic Dystrochrepts
Elliottsville	090–192	coarse-loamy, mixed, frigid Typic Haplohumods
Elliottsville	090–292	coarse-loamy, mixed, frigid Typic Haplorthods
Elliottsville	090–392	coarse-loamy, mixed, frigid Lithic Haplohumods
Elliottsville	110–192	coarse-loamy, mixed, frigid Typic Haplorthods
Elliottsville	110–292	coarse-loamy, mixed, frigid Typic Haplohumods
Peacham	130-191	coarse-loamy, mixed, nonacid, frigid Histic Humaquepts
Peacham	130-291	coarse-loamy, mixed, acid, frigid Histic Humaquepts
Peacham	130–391	coarse-loamy, mixed, acid, frigid Histic Humaquepts
Peacham	110–191	coarse-loamy, mixed, nonacid, frigid Histic Humaquepts
Peacham	110–291	coarse-loamy, mixed, acid, frigid Histic Humaquepts
Penquis	110–187	coarse-loamy, mixed, frigid Typic Haplorthods
Penquis	110–287	coarse-loamy, mixed, frigid Lithic Haplorthods
Penquis	110–387	coarse-loamy, mixed, frigid Typic Haplorthods
Penquis	110–487	coarse-loamy, mixed, frigid Typic Dystrochrepts
Penquis	110–587	coarse-loamy, mixed, frigid Typic Haplorthods

[1]Morphologic descriptions and laboratory characterizations of individual map units are provided in Appendix B.

There was at least one map unit sampled in each group that varied in the taxonomic placement from that of the official soil series. This variation of taxonomic placement is not uncommon and should be expected when soil map units serve as a sampling basis. This means that care needs to be taken when using just the soil series placement in attempting to interpret the soil map unit. Every effort must be made to assure that the ranges of soil properties within a map unit in the field are acknowledged.

Field Procedure

The location of each site was determined by a soil scientist from the USDA, Natural Resource Conservation Service. A minimum of one mile separated each replication within a given soil map unit. At each preselected site, the soil profile was examined by the soil scientists present and a decision was made as to whether to accept or reject the location for sampling purposes.

The soils were described by genetic horizon to a 1 m depth or to bedrock and were sampled until all horizons had been included. Soil morphology and characteristics of the surrounding area were described using standard methods (Soil Survey Staff 1993). From each horizon, the entire horizon thickness in a 30×30-cm-square area was sampled for stone volume and laboratory analyses. Core samples approximately 2.5 cm high × 4.4 cm diameter were obtained in triplicate from each horizon for bulk density and water retention determinations when rock fragment content volume was not prohibitive. Care was taken to remove the cores in as close to an undisturbed state as possible. In soils having high rock fragment volumes that prevented sampling, no attempt was made to remove clods for bulk density or moisture retention estimates.

Laboratory Procedure

Rock fragment content of the bulk field sample was determined volumetrically by sieving and water displacement techniques (Reinhart 1961). Soil material smaller than 2 mm was mixed and subsampled for other analyses.

Soil cores were used to determine water retention at 0.06, 0.1, 0.33, 0.67, and 1.0 bars tension after the core had been trimmed following its equilibration at 0.33 bars. All tensions of 1 bar or less were determined by ceramic plate methods (Richards 1965). Soil volume and weight in the rings was corrected for coarse material > 2 mm. Bulk density at 0.33 bars soil moisture tension was deter-

mined using the < 2 mm fraction. Sieved soil was used to measure water retention at 2, 3, 5, and 15 bars by pressure plate methods (Richards 1965). Water available for plant use was estimated as the difference in moisture content between 0.1 and 15 bar values and reported as cm of water retained per cm of stone-free soil.

Soil organic carbon content was measured using the Walkley-Black method with a factor of 1.3 (Nelson and Sommers 1982).

Pipet analysis techniques described by Day (1965) were used to measure silt and clay content. Sands were measured by dry sieving. Organic carbon was removed from the sample using hydrogen peroxide and heat treatment. The oxidized soil was dispersed by overnight shaking in a weak solution of sodium hexametaphosphate The data are presented as percentage by weight.

Soil pH was measured in water, calcium chloride, and potassium chloride for each horizon. A soil:solution ratio of 1:1 was used with water and potassium chloride, but a 2:1 ratio of calcium chloride to soil was used (MacLean 1982). The soil solution mixes were allowed to equilibrate overnight before measurements were made.

Neutral, 1.0N ammonium acetate (NH_4OAc) was used to extract calcium, magnesium, potassium, and sodium from the various soil horizons. The extracted solution was analyzed using atomic absorption as has been described previously (Rourke and Beek 1971). Exchange acidity was measured using a 1.0N potassium chloride extract followed by titration with sodium hydroxide (Thomas 1982). Extractable acidity was measured in a 0.5N barium chloride triethanolamine extract by titration with hydrochloric acid (Thomas 1982). Cation exchange capacity (CEC) was determined by the sum of exchangeable cations plus extractable acidity. Effective cation exchange capacity (ECEC) was estimated by the sum of exchangeable cations plus exchangeable acidity.

RESULTS AND DISCUSSION

Danforth Soil Map Unit

Data presented as weighted means of the five sites sampled are presented in Appendix A, Table 1. The average texture is a silt loam in the two upper horizons. The texture becomes coarser with depth and is a coarse sandy loam in the lowest two horizons. Coarse silt is the major silt component except in the upper mineral horizons where fine silt predominates or is nearly equal to coarse silt. All horizons contain sufficient volume of rock fragments to be considered as gravelly, and the lower two horizons are very gravelly.

Clay content is highest in the surface horizon and decreases to a nearly constant level in the lower two horizons. The moisture retained at two bars and higher decreases as depth increases. Organic matter levels also decrease with depth below the soil surface with the exception of the Bs and BC horizons which have similar values. The volume of rock fragments is relatively constant in the BC and C horizons and is slightly less in upper soil horizons.

Soil reaction is extremely acid in the surface organic and mineral horizons and slowly increases with depth to become strongly acid in the C horizon.

Extractable acidity is highest in the surface organic horizon, but is reduced by about half or more in the upper three mineral horizons and is further reduced by half in each successively deeper horizon to the C. Extractable acidity is the largest component of the CEC in all soil horizons. The exchange acidity is highest in the surface mineral horizon, but is only about one-third of the extractable acidity. The ECEC of most soil horizons is composed primarily of exchange acidity except in the surface organic horizon which has a strong calcium and magnesium component. Basic cation leaching is a significant process in the genesis of this soil. Most of the basic cations required for plant nutrition are concentrated in the organic soil surface. The lack of an accumulation of basic cations with depth in the soil may be the result of rapid nutrient recycling by native plants, which remove cations from the soil surface as they become available, thereby minimizing their illuviation in mineral subsoil horizons. The low basic cation content of these soils may also reflect slow rates of weathering and minerals of low base cation content in the soil parent materials. Both CEC and ECEC are low in the BC and C horizons, reflecting the lack of illuvial materials, organic matter, and weathering in these horizons.

Elliottsville Soil Map Unit

The weighted means for various physical and chemical soil horizons in this map unit are presented in Table 2 of Appendix A. The soil texture of this map unit averages as a silt loam in all horizons. There are two gravelly horizons with other horizons having nearly enough rock fragments for a gravelly modifier. Rock volume averages presented in Appendix A Table 2 show a rather constant distribution in the various horizons with no single size predominating. Fine silts predominate in the silt fraction of the E, Bh, Bs, and BC horizons. The slightly finer textures near the soil

surface may reflect enhanced weathering, or the deposition in the E of finer silty materials from aeolian or water deposition. There is an increase in clay below the E horizon in the Bhs and Bh as might be expected in this type of soil formation. The clay did not appear as films on peds or pores in these horizons. Clay is lowest in the BC and C horizons and highest in the Bhs horizon immediately below the leached E. The increase in the Bhs is possibly the result of leaching from the E and illuviation in the B. The clay increase in the upper B horizon is not unusual for soils developing by podzolization (i.e., Spodosol-formation).

Water retention in the soil is highest in the surface organic horizon and in B horizons in which organic matter has illuviated. The increase or decrease of clay follows the organic carbon variations and may also contribute to water retention. Bulk density values are below 1.0 g cm^{-3} down to the C horizon, indicating that the upper soil horizons have ample pore space to retain soil water.

Bulk density of the various mineral soil horizons is lowest in the Bh and increases with depth in other horizons. The density of the C horizon is not sufficient to prevent root penetration or to greatly slow water or air movement. Organic carbon is highest in the surface organic horizon, and in the mineral horizons peaks in the uppermost B horizon and then slowly declines with depth in the soil. Organic carbon only reaches an average low value of 1.54% in the C horizon. The comparatively high organic carbon content in the C horizon is unusual in Maine soils and is evidence of considerable organic carbon illuviation in this soil map unit. The vertical distribution of soil organic carbon is characteristic of podzolic soils developing as a single sequum.

Soil reaction is extremely acid in the surface organic horizon and increases slowly with depth to become very strongly acid in the C horizon.

The surface organic horizon has the highest amount of available plant nutrients, but also the greatest amount of acidity, thus the horizon has very low base saturation. Cation exchange capacity decreases rapidly in the E horizon, reflecting the lower organic carbon levels in this horizon. CEC and ECEC increase in the B horizon as compared to the E and decrease slowly to the lowest B horizon, below which the CEC or ECEC is comparable to, or slightly lower than, the E. Cations important for plant nutrition are in very low concentration in the lower soil horizons, and in these horizons most of the CEC or ECEC comes from extractable or exchangeable acidity. The very low exchangeable acidity values in

the BC and C horizons indicate low soluble aluminum at the slightly higher pH values and low levels of organic carbon.

Peacham Soil Map Unit

The weighted averages of the various soil properties in this unit are presented in Appendix A Table 3. The average soil texture in this map unit is loam. The surface mineral horizon is slightly coarser than the other mineral horizons having less fine silt and clay. The division of silt shows that fine silt predominates in all mineral horizons. Average clay content is highest in the Cdg horizon, but is only about 2% more than the surface mineral horizon. The volume of rock fragments in the mineral soil horizons is highest in the surface and decreases in lower horizons. The rock fragment volume of the surface mineral horizon may be highest as a result of frost action pushing coarse rock material to the surface, or as a result of erosion of finer material leaving a residual accumulation of coarse fragments behind. The former possibility appears to be most reasonable because of the nearly level to depressional position of this soil map unit on the landscape. The few rock fragments in the Oa horizon are probably the result of deposition following tree uprooting.

Soil moisture retention averages are high in the organic horizon, but low in underlying mineral soil horizons. The average bulk density in the Bg and Cdg horizons is sufficient to limit roots, and most roots are restricted to the Eg and Oa horizons. Therefore, the moisture retained in the lower Bg and Cdg horizons is not readily accessible for plant growth. The root-restricting layers are close to the mineral soil surface and create an excellent opportunity for further tree loss from wind following a partial harvest. This is further enhanced by the presence of a water table in the lower mineral horizons during much of the year.

The average organic carbon content of the mineral soil is highest in the surface horizon and decreases steadily in lower horizons. The carbon level in the mineral soil does not reach the levels found in soils with better drainage in Maine.

The average soil reaction is lowest in the organic surface and increases in the Eg and Bg horizons, but decreases slightly in the Cdg horizon. The slightly lower pH in the Cdg is consistent with a lower average base saturation in the Cdg as compared to that of the Bg.

The CEC and ECEC of the soil are highest in the Oa and Eg, which coincides with areas in the soil having the highest organic

carbon contents. The increase of clay in the Cdg is not sufficient to support an increase in the exchange capacity of that horizon. Most of the cations for plant food are concentrated in the surface organic horizon with only small amounts in the Eg horizon. Plant food stored in deeper horizons is of little value to present day vegetative growth because of its inaccessibility to plant roots. It is noteworthy that exchangeable potassium is below detection limits in the Eg horizon, and present in only small amounts in deeper mineral horizons. The amount of bases present is greatest in the organic horizon, but the bulk density of this horizon is low. Thus a large volume of the Oa horizon is required to provide comparable nutrient content as a mineral soil horizon of higher bulk density.

Penquis Soil Map Unit

The average soil texture in this map unit, as seen in Appendix A Table 4, is silt loam. The average range of clay content is small, from approximately 10% in the Bs to 12% in the BC. Fine silt is the largest single component of this soil. The mineral soil horizons contain between 10 and approximately 20% rock fragments by volume. All mineral soil textures except the Ap would be preceded by the gravelly modifier, indicating the coarse materials that are present. Lack of rock fragments in the soil surface may be related to stone removal as part of agricultural activity that these soils have experienced, and relates to the lack of rock fragments larger than 76 cm in the Ap horizon and the presence of this size class of coarse fragments in all other horizons.

Soil water content averages are highest in the Bs horizon, which has an organic carbon content that is second only to the surface Ap horizon. Higher water retention in the Bs reflects soil structure development through soil formation processes and not through additions made by agricultural activity. Comparison of water retention at 0.1 bars in the Bs to that in the C horizon illustrates the impact of soil development, improved soil structure, and increased pore space upon water retention.

The average bulk density is below 1.0 g cm^{-3} in all horizons except the C horizon. It increases in the C horizon to a value of nearly 1.2, which is not considered root limiting. The rock content of these soil horizons may maintain a skeletal condition that prevents soil compaction to greater densities during agricultural traffic.

The average organic carbon levels are highest in the Ap horizon followed by the Bs horizon. The high levels in the Ap horizon are partially caused by the change of land use from row crop agri-

culture to forestry or pasture management. The time since the soil has been plowed is not sufficient for the Ap to be destroyed.

The average soil reaction (pH) is relatively uniform throughout all horizons as measured in water, but shows the Ap to be lowest when measured in either potassium chloride or calcium chloride. In most instances, deeper horizons have higher pH. Average acidity is greatly reduced in the lower two horizons.

Calcium is the only cation to exist in quantity in the cation exchange complex of horizons within this soil. Magnesium, potassium, and sodium are present in small amounts or at non-detectable levels. The major component of cation exchange capacity is acidity as measured by either technique.

CONCLUSIONS

The soils in this study generally have sufficient soil development to meet the classical definition of the categories in which they should be placed in Soil Taxonomy. Within each soil map unit, there are soils that vary from the classical placement as shown in Table 2. The variation is moderate and reflects changes that are the result of natural causes. This condition could later change because of further soil development through time. Only Danforth and Penquis have soil map units that are not capable of being placed in the designated soil order, and this condition occurred only in one instance in each soil map unit.

In both the Elliottsville and Peacham soil map units there are variations from the classical placement, but they occur at lower levels in the classification system and are most likely the result of localized causes such as aspect or amount and type of vegetative cover in the case of organic content in the upper 10 cm of the B horizon in the Elliottsville, or a lack of leaching of bases in the instance of a lack of acidity in soil materials above a root-limiting layer in the Peacham.

The Danforth soils are too high in coarse fragment volume to sample for moisture retention and bulk density using the core method. Penquis soils are frequently high in coarse fragment volume, but can be sampled for complete analysis because strength of the fragments is weak and they are easily sheared.

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APPENDIX A

Appendix A Table 1. *Weighted means by horizon of soil data for the* Danforth Soil Map Unit.

Sands

Horizon	Sand 2–.05	Silt .05–.002	Clay <.002	Very Coarse 2–1	Coarse 1–0.5	Medium 0.5–.25	Fine .25–.1	Very Fine .1–.05	Fine Silt .02–.001
	Pct. of < 2mm								
Oa									
E/B	28.00	61.91	10.08	2 71	3.12	3.16	7.42	11.59	33.59
Bhs	39.73	51.66	8.59	6.67	5.87	5.07	9.71	12.41	24.71
Bs	52.32	40.09	7.57	12.28	10.32	7.83	11.29	10.59	20.26
BC	66.28	29.12	4.59	17.20	14.55	9.90	13.48	11.13	13.52
C	65.82	29.54	4.62	14.73	13.28	9.97	15.21	12.62	13.92

Horizon	Org. C	BD	Water Content (Bar Pressures) .06	0.1	0.33	0.67	1.0	2.0	3.0	5.0	15.0
	%	g/cc	%								
Oa	42.61							144.2	99.2	83.2	75.3
E/B	8.73							19.4	13.6	11.8	9.7
Bhs	2 76							17.0	14.2	12.7	11.3
Bs	1 82							11.9	10.4	9.3	8.0
BC	1.82							6.3	5.5	4.7	3.8
C	0.32							5.8	4.8	3.9	2.8

Horizon	Soil Reaction KCl	$CaCl_2$	H_2O	Bases Ca	Mg	Na	K	$BaCl_2$	Acidity KCl	CEC	ECEC
	meq/100gm										
Oa	2.75	3.08	3.54	10.34	2.79	0.06	0.79	67.47	5.09	81.46	19.08
E/B	2.78	3.13	3.70	0.57	0.35	0.00	0.09	25.63	8.44	26.65	9.46
Bhs	3 88	4 08	4.64	0.34	0.15	0.00	0.08	27.61	3.66	28.19	4.23
Bs	4 24	4.45	4.83	0.14	0.03	0.00	0.01	20.43	1.45	20.61	1.67
BC	4 46	4.72	5.03	0.12	0.00	0.00	0.00	9.18	0.55	9.30	0.67
C	4.49	4.77	5.13	0.11	0.00	0.00	0.00	5.76	0.35	5.87	0.46

Horizon	>76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	Percent by Volume Rock Fragments (width in mm)								
Oa	0.00	0.00	0.00	0.00	0.07	0.00	0.06	0.11	0.24
E/B	8.29	5.32	1 66	1.29	0.98	1.34	1.93	2.26	23.07
Bhs	4 84	1 93	1.58	1 53	1.35	2.20	3.86	5.41	22.70
Bs	5.38	3.81	1 56	3.54	2.66	3.89	6.40	8.85	36.10
BC	11 87	3.75	2.30	4 90	3.35	4 25	7.13	9.70	47.26
C	12.97	4 38	2.47	4.10	2.66	3.62	6.20	9.74	46.15

Appendix A Table 2. Weighted means by horizon of soil data for the Elliottsville Map Unit.

Horizon	Sands: Sand 2–.05	Silt .05–.002	Clay <.002	Very Coarse 2–1	Coarse 1–0.5	Medium 0.5–.25	Fine .25–.1	Very Fine .1–.05	Fine Silt .02–.001
	Pct. of < 2mm								
Oa									
E	24.61	64.21	11 17	2.77	3.13	3.47	6.32	8.92	39.55
Bhs	21.60	59.14	19.25	2.98	6.70	7.70	11.53	9.74	27.14
Bh	26.25	58.49	15.25	4.25	4.11	3.79	6.16	7.94	37 52
Bs	30.25	59.59	10.15	7.11	4.98	4.16	6.15	7.85	35.24
BC	36.06	55.51	8.42	8.14	6.13	5.27	7.64	8.90	31.70
C	38.4	53.77	7.82	8.56	6.65	5.93	7.64	9.61	29 46

Horizon	Org. C	BD	Water Content (Bar Pressures) .06	0.1	0.33	0.67	1.0	2.0	3.0	5.0	15.0
	%	g/cc	%								
Oa	30.84	0.21	174.3	166.0	150.0	144 2	139.3	99.3	76.5	62.6	55.7
E	3.44	0.81	47.6	45.3	40.7	37.4	33.9	21.1	16.9	11.2	8.8
Bhs	7.98	0.48	94.2	86.8	76.0	69.7	64 9	35.8	31.7	24.3	21.5
Bh	5.47	0.58	83.9	76.6	65.0	58.1	53.8	30.7	24.6	20.1	16.9
Bs	4 16	0.72	67.7	62.6	51.2	45.5	42.1	23.6	19.6	15.8	12.6
BC	1.99	0.99	46.5	43.9	35.8	30.9	28.0	15.0	12.0	9.9	7.3
C	1.54	1.08	39.7	37.4	29.5	25.0	22.7	11.6	9.4	7.8	5 9

Horizon	Soil Reaction KCl	$CaCl_2$	H_2O	Bases Ca	Mg	Na	K	$BaCl_2$	Acidity KCl	CEC	ECEC
	meq/100gm										
Oa	2.81	3.14	3.60	4.01	1.22	0.10	0.86	63.74	7.51	69.93	13.70
E	2.69	3.08	3.63	0.50	0.16	0.00	0.10	20.43	6.50	21 19	7.26
Bhs	2.97	3.33	3.86	0.50	0.26	0.00	0.10	51.13	13.86	52.99	14.72
Bh	3 42	3.68	4.20	0.27	0.13	0.00	0.10	44.33	9.62	44.83	10.11
Bs	3.89	4.09	4.60	0.16	0.03	0.00	0.05	34.99	5.08	35.18	5.27
BC	4.24	4.39	4.82	0.06	0.04	0.00	0.00	20.66	1.81	20.76	1.91
C	4.24	4.42	4.87	0.10	0.00	0.00	0.00	16.84	1.61	16.94	1.71

Horizon	Percent by Volume Rock Fragments (width in mm) >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
Oa	0.00	0.00	0.00	0.04	0.00	0.13	0.15	0.22	0.54
E	0.00	5.40	2.49	2.28	1.22	1.16	1.35	1.74	15.64
Bhs	0.00	0.76	0.22	1.59	0.54	0.67	1.13	1.47	6.38
Bh	7.60	0.90	0.00	0.50	0.37	0.47	1.33	1.80	12.96
Bs	8.05	0.93	0.06	1.10	0.74	1.05	1.98	3.02	17.82
BC	0.89	1.53	0.72	1.29	0.97	1.24	2.27	3.46	12.37
C	0.00	1.20	1.18	1.68	1.37	2.11	2.85	4.52	14.91

Appendix A Table 3. Weighted means by horizon of soil data for the Peacham Soil Map Unit.

Horizon	Sand 2–.05	Silt .05–.002	Clay <.002	Very Coarse 2–1	Coarse 1–0.5	Medium 0.5–.25	Fine .25–.1	Very Fine .1–.05	Fine Silt .02–.001
	Pct. of < 2mm								
Oa									
Eg	50.22	43.42	6.35	5.14	10.19	10.20	12.94	11.74	22.00
Bg	44.19	48.55	7.26	5.30	6.75	7.80	12.54	11.79	26.74
Cdg	43.03	48.82	8.14	5.49	6.50	7.28	12.08	11.68	28.86

Horizon	Org. C	BD	Water Content (Bar Pressures) .06	0.1	0.33	0.67	1.0	2.0	3.0	5.0	15.0
	%	g/cc	%								
Oa	41.20	0.15	445.1	416.2	364.3	345.7	339.8	119.9	85.0	73.0	66.0
Eg	2.11	1.41	29.4	28.3	26.3	21.9	19.4	10.8	8.9	7.2	6.2
Bg	0.31	1.73	19.1	18.4	16.8	14.8	13.5	8.5	6.5	5.0	3.2
Cdg	0.16	1.86	14 5	14.2	13.9	13.1	12.1	8.4	6.3	4.9	3.0

Horizon	Soil Reaction KCl	$CaCl_2$	H_2O	Bases Ca	Mg	Na	K	$BaCl_2$	Acidity KCl	CEC	ECEC
	meq/100gm										
Oa	3.12	3.47	3.88	13.34	2.92	0.12	0.40	58.54	6.90	75.32	23.69
Eg	3.74	4.09	4.96	1.13	0.26	0.00	0.00	12.96	3.06	14.35	4.45
Bg	4.23	4.81	5.75	1.63	0.38	0.00	0.02	5.01	0.68	7.04	2.71
Cdg	4.19	4.90	5.59	1.83	0.48	0.00	0.02	2.64	0.45	4.97	2.79

Horizon	Percent by Volume Rock Fragments (width in mm) >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
Oa	1.13	0.00	0.00	0.18	0.11	0.10	0.19	0.10	1.81
Eg	8.49	1.86	1.18	2.73	1.22	1.66	2.07	1.95	21.16
Bg	0.00	0.24	0.18	0.51	0.61	1.17	2.36	4.47	9.53
Cdg	0.00	0 09	0.19	0.59	0.49	0.90	1.81	3.22	7.29

Appendix A Table 4. Weighted means by horizon of soil data for the Penquis Soil Map Unit.

Horizon	Sand 2–.05	Silt .05–.002	Clay <.002	Very Coarse 2–1	Coarse 1–0.5	Medium 0.5–.25	Fine .25–.1	Very Fine .1–.05	Fine Silt .02–.001
	Pct. of < 2mm								
Ap	27.09	62.17	10.73	4.61	4.40	3.87	6.29	7.92	38.08
Bs	28.71	61.60	9.68	4.92	4.72	4.14	6.48	8.45	36.81
BC	31.78	56.13	12.07	5.46	5.56	5.18	7.55	8.03	35.92
C	37.45	52.56	9.98	7.58	7.14	5.84	8.38	8.51	32.26

Horizon	Org. C	BD	Water Content (Bar Pressures) .06	0.1	0.33	0.67	1.0	2.0	3.0	5.0	15.0
	%	g/cc	%								
Ap	4.14	0.77	57.9	54.7	43.9	39.6	37.1	26.5	21.1	18.3	16.0
Bs	2.69	0.72	75.6	69.6	52.5	43.6	40.4	23.0	16.8	14.9	13.4
BC	1.35	0.95	49.8	47.4	37.8	31.1	27.5	16.2	12.7	10.9	8.3
C	0.40	1.19	34.6	33.5	27.2	22.6	18.9	10.5	8.3	6.8	4.9

Horizon	Soil Reaction KCl	$CaCl_2$	H_2O	Bases Ca	Mg	Na	K	$BaCl_2$	Acidity KCl	CEC	ECEC
	meq/100gm										
Ap	4.42	4.86	5.59	2.69	0.15	0.00	0.15	20.43	1.72	23.42	4.72
Bs	4.47	4.80	5.57	0.66	0.05	0.00	0.05	21.60	1.14	22.35	1.89
BC	4.63	5.08	5.88	0.55	0.00	0.00	0.09	12.52	0.62	13.15	1.25
C	4.54	5.13	5.86	0.22	0.00	0.00	0.08	5.88	0.37	6.19	0.68

Horizon	Percent by Volume Rock Fragments (width in mm) >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
Ap	0.00	0.34	0.30	0.71	0.65	0.98	2.36	4.83	10.18
Bs	1.70	0.73	0.76	1.71	1.08	1.53	2.90	5.09	15.50
BC	3.32	0.96	0.66	1.07	1.06	1.80	3.74	8.23	20.85
C	0.28	1.59	1.44	2.14	0.96	2.60	3.83	9.29	22.13

APPENDIX B

Soil Map Unit: Danforth
Soil Survey # 110190
Location: Barnard Twp., Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling and R.V. Rourke
Date: 05/90

Oi—3 to 0 cm; undecomposed organic matter; abrupt wavy boundary.

Oa—0 to 12 cm; Black (5YR 2.5/1) sapric material; weak fine and medium granular structure; many fine and very fine, and common medium and coarse roots throughout; abrupt irregular boundary.

E/B—12 to 25 cm; 90% Dark grey (2.5YR 4/0) and 10% dark reddish brown (5YR 3/3) channery silt loam;weak very fine granular structure; massive; very friable; many very fine and fine, common medium and coarse roots throughout; abrupt irregular boundary.

Bh—25 to 42 cm; 50% dusky red (2.5YR 3/2) and 50% reddish brown (5YR 4/4) channery sandy loam; weak very fine granular structure; very friable, weakly cemented in the (5YR 4/4); few discontinuous iron manganese prominent stains throughout (2.5YR 2.5/2); common very fine, fine and medium roots throughout; clear wavy boundary.

Bs—42 to 52 cm; Yellowish red (5YR 4/6) very channery coarse sandy loam; massive; very friable; very weakly cemented in small areas; patchy prominent very dusky red stains (2.5YR 2.5/2) throughout; few very fine, fine and medium roots throughout; clear wavy boundary.

BC—52 to 82 cm; 55% Brown (10YR 5/3) and 45% dark grayish brown (2.5Y 4/2) very channery coarse sandy loam; massive; friable; gradual smooth boundary.

C—82 to 100 cm; Dark grayish brown (2.5Y 4/2) channery fine sandy loam; massive; friable.

SOIL—Danforth SOIL Nos.—110190 LOCATION—Barnard Twp., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0 25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–12	Oa										
12–25	E	42.06	51.19	6.75	2.42	4.09	4.75	12.65	18.15	24.79	26.40
25–42	Bh	62.00	30.27	7.73	11.07	10 51	8.98	15 44	16.00	16.84	13.43
42–52	Bs	72 63	23.07	4.30	15.22	11.83	9.67	18.36	17.55	15.13	7.94
52–82	BC	70.02	27.13	2.85	15.14	12.11	9.22	17.06	16 49	17.07	10.06
82–100	C	68.80	28.84	2.36	5.74	5.59	6.17	22.73	28.57	21.77	7.07

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
0–12	37.37							104 3	83 4	76.6	70.7		2 70	2.95	3.45
12–25	3 39							15.9	10.2	9.8	8 4		2.80	3.10	3.60
25–42	3.38							15 1	13 0	12.5	11.8		3.95	4.05	4.50
42–52	1.54							8 3	7.3	6.7	6.0		4.45	4.55	4.85
52–82	0.23							4 0	3 2	2.8	2.2		4.85	5.00	5.20
82–100	0.13							2 6	2.0	1.7	1.3		4.75	4.90	5.10

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–12	8.7	1 4	0.1	0.9	68.8	79.9	6 95	18.05	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.4
12–25	0.5	0.1	0.0	0.1	22.3	23.0	6.45	7 15	13.6	6.9	1 6	0.5	1.3	1 4	1.5	1 5	28.3
25–42	0.2	0.1	0.0	0.0	29.1	29.4	2.95	3 25	2.6	3 3	3.4	2.2	1.8	4 1	7.2	8.6	33.2
42–52	0.1	0.0	0.0	0.0	17.5	17.6	0 6	0.7	0.0	4.6	1.8	5.3	3.4	6.0	9.2	11.2	41.5
52–82	0.1	0.0	0.0	0.0	4.1	4.2	0.1	0.2	9 1	4.2	1.3	5 7	3.1	4 6	6 9	8.3	43.2
82–100	0.1	0.0	0.0	0.0	1.8	1.9	0.1	0.2	3 8	1.8	2.4	0.8	1.4	2.0	3 1	4.5	19.8

Soil Map Unit: Danforth
Soil Survey # 110290
Location: Abbot, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling and R.V. Rourke
Date. 05/90

Oi—2 to 0 cm; loose litter and twigs.

A—0 to 8 cm; 90% Very dark grayish brown (10YR 3/2) and 10% brown (7.5YR 5/2) silt loam; moderate very fine and fine granular structure; very friable; many very fine, fine, medium and common coarse roots throughout; abrupt wavy boundary.

Bh—8 to 22 cm; 80 % Brown to dark brown (7.5YR 4/4) and 20% dark reddish brown (5YR 3/4) gravelly silt loam; weak very fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; clear wavy boundary.

Bs1—22 to 28 cm; Strong brown (7.5 YR 5/6) very gravelly silt loam; weak very fine granular structure; very friable; many very fine, fine and medium roots throughout; clear wavy boundary.

Bs2—28 to 48 cm; Yellowish brown (10YR 5/6); very gravelly sandy loam; weak very fine granular structure; very friable; many very fine, fine and medium roots throughout; clear wavy boundary.

BC—48 to 75 cm; Olive brown (2.5Y 4/4) very cobbly sandy loam; weak very fine granular structure; friable; few very fine, fine and coarse roots throughout; clear wavy boundary.

C—75 to 100 cm; Dark grayish brown (2.5Y 4/2) very cobbly coarse sandy loam; massive; friable; few very fine roots throughout.

SOIL—Danforth SOIL Nos.—110290 LOCATION—Abbot, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–8	A	27.47	64.01	8.52	2.89	2.99	3.26	6 47	11.86	36.01	28.00
8–22	Bh	29.14	59.87	10.99	4.64	4.79	4.02	6.19	9.50	31.59	28.28
22–28	Bs1	40.36	51.45	8.19	8.89	7.27	5.55	7 91	10.74	28.65	22.80
28–48	Bs2	53.51	41.79	4.70	13.92	10.24	6.88	11.16	11.31	20.48	21.31
48–75	BC	60.60	35.65	3.75	13.96	10.40	8.16	15.53	12.55	18.60	17.05
75–100	C	63.86	33.89	2.25	14.09	11.25	8.31	16.37	13.84	20.67	13.22

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
0–8	5.08							20.4	14.9	14.2	11.7		3.30	3.60	4.10
8–22	3.35							19.8	16.3	15.1	13.7		3.95	4.10	4.60
22–28	2.71							15.1	13.7	12.6	11.5		4.35	4.50	4.95
28–48	1.34							10.0	8.5	7.7	6.9		4.40	4.65	5.00
48–75	0.78							7.1	6.1	5.4	4.8		4.50	4.80	5.05
75–100	0.31							4.4	3.6	3.1	2.6		4.60	4.90	5.10

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–8	1.1	0.3	0.0	0.1	22.4	23.9	6.5	8.0	0.0	1.9	0.0	2.0	0.4	0.9	1.1	1.8	8.1
8–22	0.3	0.1	0.0	0.1	30.1	30.6	3.55	4.05	0.0	0.7	1.9	1.1	1.1	2.3	3.7	4.4	15.2
22–28	0.2	0.0	0.0	0.0	25.8	26.0	1.15	1.35	0.0	6.8	4.6	3.8	5.0	6.6	10.0	12.7	49.5
28–48	0.1	0.0	0.0	0.0	16.1	16.2	0.75	0.85	18.7	3.8	0.8	3.7	1 8	3.2	4.6	6.0	42.6
48–75	0.1	0.0	0.0	0.0	10.4	10 5	0.5	0.6	17.3	1 6	2.6	5.0	3.3	3.5	5.5	7 4	46.2
75–100	0.1	0.0	0.0	0.0	5.0	5.1	0.2	0.3	13.6	2.6	1.6	6.0	3.1	4.3	6.7	7.6	45.5

Soil Map Unit: Danforth
Soil Survey # 130190
Location: Brassua Twp., Somerset County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 06/90

Oa—0 to 10 cm; Black (7.5YR 2/0) sapric material; weak fine and medium granular structure; very friable; many very fine, fine, medium and coarse roots throughout; abrupt wavy boundary.

E—10 to 24 cm; 60% Pinkish gray (7.5YR 6/2) and 40% very dusky red (2.5YR 2.5/2) gravelly silt loam; weak fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; abrupt wavy boundary.

Bhs—24 to 28 cm; Very dusky red (2.5YR 2.5/2) gravelly silt loam; weak very fine granular structure; very friable; common very fine, fine and medium roots throughout; abrupt wavy boundary.

Bs1—28 to 35 cm; Red (2.5YR 4/6) gravelly loam; weak fine granular structure; very friable; common very fine, fine and medium roots throughout; abrupt wavy boundary.

Bs2—35 to 41 cm; Dark yellowish brown (10YR 4/4) very gravelly sandy loam; weak fine granular structure; very friable; few very fine and fine roots throughout; clear wavy boundary.

BC—41 to 74 cm; Olive brown (2.5Y 4/4) very cobbly coarse sandy loam; single grain; very friable; few very fine and fine roots throughout; clear smooth boundary.

C—74 to 100 cm; Dark grayish brown (2.5Y 4/2) extremely cobbly coarse sandy loam; single grain; friable; few very fine roots throughout.

SOIL— Danforth SOIL Nos.—130190 LOCATION—Brassua Twp., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–10	Oa										
10–24	E	21.87	65.48	12.65	3.52	2.95	2.38	4.78	8.24	30.42	35.06
24–28	Bhs	34.10	52.19	13.71	8.90	6.76	4.65	6.14	7.65	25.00	27.19
28–35	Bs1	43.36	45.62	11.02	11.63	8.60	6.52	7.99	8.62	24.04	21.58
35–41	Bs2	49.20	44.51	6.29	13.26	11.46	7.92	8.30	8.26	24.11	20.40
41–74	BC	70.24	24.41	5.35	23.85	20.60	11.15	8.72	5.92	12.08	12.33
74–100	C	73.61	22.56	3.83	26.83	19.84	10.92	9.33	6.69	12.46	10.10

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1 1)	$CaCl_2$ (2:1)	H_2O (1:1)
0–10	49.85							160.3	103.0	96.0	83.8		2.60	2.95	3.40
10–24	4.37							21.7	15.8	14.3	11.6		2.55	2.90	3.45
24–28	5.10							22.0	18.5	17.2	16.3		3.25	3.45	3.95
28–35	3.79							17.2	15.9	14.6	13.4		3.85	3.90	4.20
35–41	1.97							11.2	10.0	9.2	8.2		4 10	4.20	4.60
41–74	0.81							6.2	5.6	4.9	3.8		4.15	4.40	4.70
74–100	0.37							4.1	3.6	3.0	2.3		4.35	4.55	4.90

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–10	12.2	3.6	0.0	0.6	69.7	86.1	5.05	21.45	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
10–24	0.9	0.6	0.0	0.1	34.6	36.2	10.65	12.25	7.8	3.4	1.3	1 3	1.1	1 4	2.1	2.3	20.7
24–28	0.3	0.3	0.0	0.1	45.0	45.7	9.35	10.05	2.8	0.0	0.0	2.2	0.4	2.2	3.0	4.5	15.1
28–35	0.2	0.1	0.0	0.1	37.1	37.5	4.55	4.95	0.0	1.9	2.0	2.2	1.8	3.0	4.9	6.5	22.3
35–41	0.1	0.1	0.0	0.0	21.3	21.5	1.8	2.0	0.0	7.0	1.6	4.6	4.6	6.0	12.6	16.2	52.6
41–74	0.1	0.0	0.0	0.0	9.6	9.7	0.95	1.05	16.5	3.6	1.7	4.3	3.3	4.2	7.3	9.4	50.3
74–100	0.1	0.0	0.0	0.0	5.3	5.4	0.5	0.6	25.0	6.3	3.6	5.5	4.5	5.7	10.2	15.1	75.9

Soil Map Unit: Danforth
Soil Survey # 130290
Location: West Forks Plt., Somerset County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 06/90

Oa—0 to 3 cm; Black (5YR 2.5/1) sapric material; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt smooth boundary.

E—3 to 11 cm; 60% Reddish gray (5YR 5/2), 40% yellowish red (5YR 4/8) gravelly silt loam; weak very fine and fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt irregular boundary.

Bh—11 to 19 cm; 90% Yellowish red (5YR 4/8), 10% dark reddish brown (5YR 3/3) gravelly silt loam; weak fine granular structure; very friable; many very fine, fine, and medium roots throughout; abrupt irregular boundary.

Bs1—19 to 32 cm; Dark yellowish brown (10YR 4/4) gravelly loam; weak fine granular structure; very friable; common very fine, fine, and medium roots throughout; clear wavy boundary.

Bs2—32 to 47 cm; Dark yellowish brown (10YR 4/6) gravelly coarse sandy loam; weak fine granular structure; friable; few very fine and fine roots throughout; clear smooth boundary.

BC—47 to 53 cm; Olive brown (2.5Y 4/4) extremely gravelly coarse sandy loam; single grain; friable; few very fine and fine roots throughout; clear smooth boundary.

C—53 to 100 cm; 80% Very dark grayish brown (2.5Y 3/2), 20% olive brown (2.5Y 4/4) very gravelly sandy loam; massive; friable; manganese stains on stones dark reddish brown (5YR 2.5/2).

SOIL—Danforth SOIL Nos —130290 LOCATION—West Forks Plt , Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0 1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0– 3	Oa										
3–11	E	16.63	67.70	15.67	2.10	2.49	2.51	3.90	5.63	26.01	41.69
11–19	Bh	23.15	60.73	16.12	5.96	4.95	3.42	3.98	4.84	24.77	35.96
19–32	Bs1	39.96	49.65	10.39	10.41	8.94	6.71	7.59	6.31	20.57	29.08
32–47	Bs2	59.75	29.44	10.81	15.02	14.42	11.33	12.17	6.81	9.67	19.77
47–53	BC	64.32	27.84	7.84	11.86	14.58	13.27	15.74	8.87	10.84	17.00
53–100	C	61.66	31.09	7.25	11.50	13.39	11.76	15.27	9 74	12.38	18.71

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
0–3	35.42							82.5	72.2	63.3	57.6		3.35	3.65	4.15
3–11	5.41							30.9	23.0	18.4	14 2		2.55	3.00	3.60
11–19	3.49							25.5	20.4	17.2	14 5		3.60	3.90	4.30
19–32	2.38							16.5	14.0	12.1	10.1		4.10	4.35	4.65
32–47	1.43							10.6	9.4	8.1	6.4		4.15	4.45	4.80
47–53	0.80							8.0	7.1	5.9	4.5		4.30	4.60	4.85
53–100	0.32							8.5	7.0	5.5	3.6		4.40	4 75	5.25

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–3	6.1	2.9	0.0	0.7	48.9	58.6	2.9	12.6	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.5
3–11	0.5	0.4	0.0	0.2	30.8	31.9	11.5	12.6	5.6	6.0	3.0	1.7	0.5	0.8	1.4	1.2	20.2
11–19	0.1	0.1	0.0	0.1	32.9	33.2	7.7	8.0	12.7	2.3	2.4	1.9	1.9	2.1	3.5	5.4	32.2
19–32	0.1	0.0	0.0	0.0	25.0	25.1	2.35	2.45	3.3	3.8	1.0	2.8	2.1	2.5	4.6	7.4	27.5
32–47	0.1	0.0	0.0	0.0	16.8	16.9	1 45	1.55	4.5	2.7	1.5	3.6	2.3	2.9	4.9	7.2	29.6
47–53	0.1	0.0	0.0	0.0	12.5	12.6	0.8	0.9	9.2	7.3	4.6	6.3	4.1	6.3	10.7	19.5	68.0
53–100	0.1	0.0	0.0	0.0	7.3	7 4	0.45	0.55	12.0	6.1	2.2	3.8	2.0	2.8	5.1	10.2	44.2

Soil Map Unit: Danforth
Soil Survey # 130390
Location: Moscow, Somerset County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 09/90

Oa—0 to 9 cm; 50% dark reddish brown (5YR 2.5/2) and 50% very dusky red (2.5YR 2.5/2) sapric material; moderate fine and medium granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

E—9 to 20 cm; 70% gray to light brownish gray (10YR 6/2) and 30% dark yellowish brown (10YR 4/6) gravelly silt loam; weak thin platy structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt irregular boundary.

Bh—20 to 53 cm; 90% dark yellowish brown (10YR 4/6) and 10% gray to light gray (10YR 6/1) gravelly silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; clear smooth boundary.

Bs—53 to 66 cm; yellowish brown (10YR 5/6) gravelly fine sandy loam; weak fine granular structure; friable; common very fine, fine, and many medium roots throughout; clear smooth boundary.

BC—66 to 91 cm; olive brown (2.5Y 4/4) very gravelly coarse sandy loam; weak fine granular structure; friable; common very fine, fine, and many medium roots throughout; abrupt smooth boundary.

C—91 to 100 cm; olive (5Y 4/3) gravelly loamy coarse sand; single grain; friable; few very fine, fine, and common medium roots throughout.

SOIL—Danforth SOIL Nos.—130390 LOCATION—Moscow, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–9	Oa										
9–20	E	27.48	65.83	6.69	2.45	2.66	2.74	7.17	12.46	31.47	34.36
20–53	Bh	37.47	56.95	5.58	5.16	4.06	3.95	10.08	14.22	30.96	25.99
53–66	Bs	50.49	43.10	6.41	7.68	7.78	6.65	13.49	14.89	25.18	17.92
66–91	BC	62.67	31.51	5.82	15.69	14.01	9.61	12.75	10.61	16.87	14.64
91–100	C	64.63	31.06	4.31	16.42	14.78	10.14	13.73	9.56	15.43	15.63

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): 0.6 %	0.1 %	0.33 %	0.67 %	1 %	2 %	3 %	5 %	15 %	Avail H_2O cm/cm	pH: KCl (1:1)	pH: $CaCl_2$ (2:1)	pH: H_2O (1:1)
0–9	43.98							200.3	124.9	84.4	78.0		2.80	3.20	3.60
9–20	1.16							12.4	7.8	6.4	5.4		3.20	3.55	4.20
20–53	1.72							14.1	11.8	10.1	8.7		3.95	4.20	4.90
53–66	1.14							10.5	9.2	7.8	6.1		4.30	4.55	5.15
66–91	0.80							8.1	6.9	5.9	4.7		4.40	4.75	5.30
91–100	0.53							6.5	5.2	4.4	3.7		4.50	4.85	5.30

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–9	11.9	3.7	0.1	0.9	69.4	86.0	3.4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9–20	0.3	0.3	0.0	0.0	14.4	15.0	5.75	6.35	4.6	5.4	1.2	1.9	0.8	1.6	2.6	3.9	22.0
20–53	0.5	0.2	0.0	0.1	22.4	23.2	2.4	3.2	6.4	1.9	0.5	1.2	1.2	1.2	2.4	4.3	19.1
53–66	0.3	0.1	0.0	0.0	17.1	17.5	0.85	1.25	0.0	2.7	1.6	2.7	2.9	4.1	6.8	10.9	31.7
66–91	0.2	0.0	0.0	0.0	12.6	12.8	0.5	0.7	3.9	4.9	3.4	4.3	3.6	4.2	8.1	11.9	44.3
91–100	0.2	0.0	0.0	0.0	9.1	9.3	0.35	0.55	0.0	0.0	3.2	2.9	2.1	3.2	5.2	8.3	24.9

Soil Map Unit: Elliottsville
Soil Survey # 090192
Location: Lower Cupsuptic Twp., Oxford County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 07/92

Oa—0 to 6 cm; very dusky red (2.5YR 2 5/2) sapric material; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

E—6 to 7 cm; reddish gray (5YR 5/2) silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt broken boundary.

Bhs—7 to 13 cm; dusky red (2.5YR 3/2) silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

Bs1—13 to 26 cm; reddish brown (5YR 4/4) silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; clear smooth boundary.

Bs2—26 to 33 cm; brown to dark brown (7.5YR 4/4) silt loam; weak fine granular structure; friable; many very fine, common fine, and medium roots throughout; clear smooth boundary.

BC—33 to 49 cm; olive brown (2.5Y 4/4) gravelly silt loam; weak very coarse prismatic separating to weak fine and medium subangular blocky, and weak medium platy structure; friable; few very fine and fine roots throughout; clear smooth boundary.

C—49 to 57 cm; light olive brown (2.5Y 5/4) silt loam; weak very coarse prismatic structure; friable; very few fine roots between peds; abrupt boundary.

R–57 cm; bedrock.

SOIL—Elliottsville SOIL Nos.—090192 LOCATION—Lower Cupsuptic, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–6	Oa										
6–7	E	25.65	61.24	13.11	1.96	3.28	4.34	7.24	8.83	21.30	39.94
7–13	Bhs	21.46	60.02	18.52	2.55	2.89	3.30	5.69	7.03	20.96	39.06
13–26	Bs1	27.99	60.12	11.89	4.76	4.80	4.60	6.50	7.33	22.09	38.03
26–33	Bs2	32.35	59.52	8.13	6.33	5.35	5.06	6.53	9.08	22.71	36.81
33–49	BC	33.47	55.95	10.58	6.52	5.67	5.04	7.20	9.04	22.35	33.60
49–57	C	40.06	51.97	7.97	5.95	6.83	6.57	9.57	11.14	21.76	30.21
	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	pH: $CaCl_2$ (2:1)	pH: H_2O (1:1)
0–6	24.85	0.18	162.9	155.9	147.1	141.9	137.8	66.6	64.3	47.4	45.3	0.20	3.00	3.40	3.75
6–7	5.27	0.67	58.7	55.4	50.2	46.9	43.2	24.7	22.7	14.4	13.3	0.28	2.70	3.15	3.60
7–13	8.39	0.51	83.0	77.6	69.1	63.4	58.6	37.3	35.1	24.0	21.9	0.28	3.00	3.35	3.95
13–26	5.53	0.57	88.8	81.9	71.0	62.9	58.9	29.3	26.7	19.1	17.3	0.37	3.80	3.95	4.50
26–33	3.41	0.71	72.2	67.5	54.8	49.2	45.7	20.8	18.5	13.5	12.5	0.39	4.15	4.30	4.70
33–49	1.73	0.91	51.2	48.5	39.6	35.0	31.9	14.9	12.9	9.3	7.8	0.37	4.25	4.40	4.80
49–57	0.98	1.14	33.9	31.8	25.5	22.4	20.6	10.5	9.0	6.6	5.4	0.30	4.30	4.45	4.95

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–6	2.9	1.6	0.1	0.9	56.1	61.6	7.15	12.65	0.0	0.0	0.0	0.2	0.0	0.2	0.2	0.2	0.8
6–7	0.6	0.3	0.0	0.1	25.9	26.9	8.35	9.35	0.0	0.0	0.0	1.4	0.0	0.4	0.7	1.3	3.8
7–13	0.3	0.3	0.0	0.1	50.1	50.8	13.8	14.5	0.0	2.4	0.7	0.0	0.4	0.3	0.7	0.9	5.4
13–26	0.1	0.1	0.0	0.1	43.6	43.9	6.15	6.45	4.1	1.0	0.3	0.3	0.2	0.6	1.4	2.1	10.0
26–33	0.1	0.0	0.0	0.0	30.4	30.5	2.15	2.25	0.0	0.0	0.0	0.8	0.6	0.8	1.9	2.8	6.9
33–49	0.0	0.0	0.0	0.0	18.5	18.5	1.45	1.45	5.4	4.0	1.4	2.5	1.0	1.5	2.0	2.6	20.4
49–57	0.1	0.0	0.0	0.0	11.9	12.0	1.15	1.25	0.0	1.5	0.5	1.5	1.2	1.5	1.6	2.0	9.8

Soil Map Unit: Elliottsville
Soil Survey # 090292
Location: Parkertown Twp., Oxford County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 07/92

Oa—0 to 4 cm; dark reddish brown (5YR 2.5/2) sapric material; weak fine granular structure; very friable; many very fine, fine, medium, and common coarse roots throughout; abrupt wavy boundary.

E—4 to 8 cm; gray to light gray (5YR 6/1) silt loam; weak thin platy and fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt broken boundary.

Bhs—8 to 13 cm; very dusky red (2.5YR 2.5/2) silt loam; weak fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; abrupt broken boundary.

Bh—13 to 18 cm; reddish brown (5YR 4/4) silt loam; weak fine granular structure; very friable; common very fine, fine, and few medium and coarse roots throughout; clear wavy boundary.

Bs—18 to 27 cm; dark brown to brown (7.5YR 4/4) silt loam; weak fine and medium granular structure; very friable; few very fine, fine, medium, and coarse roots throughout; clear wavy boundary.

BC—27 to 44 cm; olive brown (2.5Y 4\4) silt loam; massive; very friable; few very fine, fine and medium, and common coarse roots throughout; clear smooth boundary.

C—44 to 60 cm; olive brown (2.5Y 4/4) silt loam; weak coarse and very coarse platy structure; very friable; few very fine, fine and medium, and common coarse roots throughout.

R–60 cm; bedrock.

SOIL—Elliottsville SOIL Nos —090292 LOCATION—Parkertown Twp., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–4	Oa										
4–8	E	23.30	65.62	11.08	2.95	3.40	3.31	5.48	8.16	21.73	43.89
8–13	Bhs	21.04	62.52	16.44	3.31	3.01	3.02	4.88	6.82	19.97	42.55
13–18	Bh	26.11	60.49	13.40	3.80	4.65	4.09	6 08	7.49	22.09	38.40
18–27	Bs	32.32	59.61	8.07	7.52	5.50	4.53	6.52	8.25	24.53	35.08
27–44	BC	35.44	57.60	6.96	8.25	6.12	4.91	7.07	9.09	25.01	32.59
44–60	C	37.04	56.07	6.89	8.04	6.28	5.53	7.61	9.58	23.63	32.44
	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures) .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH KCl (1:1)	pH $CaCl_2$ (2:1)	pH H_2O (1:1)
0–4	22.05	0.34	122.4	114.8	104.2	99.6	94.5	60.2	59.6	43.6	40.6	0.25	3.15	3.40	3.95
4–8	2.85	0.88	48.2	46.3	41.6	38.8	35.4	21.3	17.7	10.1	8.7	0.33	2.80	3.15	3.65
8–13	6.64	0.45	107.3	99.8	90.0	82.7	76 9	30.6	29.1	20.5	19.5	0.36	3.05	3.45	3.90
13–18	4.66	0.64	89.0	82.2	71.2	63.4	59.1	25.9	24.2	17.8	16.7	0.42	3.70	3.90	4.35
18–27	3.82	0.72	74.3	69.9	53.9	46.7	43.0	20.3	19.3	14.8	13.2	0.41	4.15	4.25	4.60
27–44	2.18	0.97	46.4	43.6	33.2	27.0	24.4	14.9	10.4	9.3	7.4	0.35	4.35	4.45	4.80
44–60	1.52	1.09	40.4	38.2	29.3	24.7	22.5	11.1	8.5	7.4	5.6	0.36	4.35	4.50	4.90

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm) >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–4	1.7	1.0	0.1	0.9	48.3	52.0	6.05	9.75	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.9
4–8	0.2	0.1	0.0	0.1	18 4	18.8	5.95	6 35	0.0	0.0	3.6	2.5	1.5	1.4	1.9	2.5	13 4
8–13	0.2	0.2	0.0	0.1	44.6	45.1	11.05	11.55	0.0	0.0	0.0	1.6	0.6	1.1	1.5	1.6	6 4
13–18	0.2	0.1	0.0	0.1	43.4	43.8	7 7	8.1	0.0	2.7	0.0	1.5	0.5	1.1	2.3	2.9	11.0
18–27	0.1	0.0	0.0	0.0	34.7	34.8	3.3	3.4	0.0	0.0	0.0	0.0	0.2	1.0	1.7	2.5	5 4
27–44	0.1	0.0	0.0	0.0	21.0	21.1	1.6	1.7	0.0	0.0	0.0	0.0	0.3	0.6	1.5	3.1	5 5
44–60	0.1	0.0	0.0	0.0	16.3	16.4	1.4	1.5	0.0	1.0	0.9	0.8	1.1	1.8	2.6	4.5	12.7

Soil Map Unit: Elliottsville
Soil Survey # 090392
Location: Lynchtown Twp., Oxford County, Maine
Drainage Class: well drained
Described by: J.W. Miller and R.V. Rourke
Date: 07/92

Oa—0 to 7 cm; black (5YR 2.5/1) sapric material; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

E—7 to 9 cm; brown (7.5YR 5/2) gravelly silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt irregular boundary.

Bhs—9 to 14 cm; very dusky red (2.5YR 2.5/2) silt loam; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt smooth boundary.

Bh—14 to 19 cm; dark reddish brown (5YR 3/3) silt loam; weak fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; abrupt wavy boundary.

Bs1—19 to 29 cm; dark brown to brown (7.5YR 4/4) silt loam; weak fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; clear smooth boundary.

Bs2—29 to 39 cm; dark yellowish brown (10YR 3/4) gravelly loam; weak fine granular structure; very friable; few very fine, fine, and common roots throughout; clear smooth boundary.

BC1—39 to 55 cm; olive brown (2.5Y 4/4) loam; massive; very friable; few very fine, fine, and medium roots throughout.

BC2—55 to 72 cm; olive brown (2.5Y 4/4) gravelly loam; massive; very friable; few very fine roots throughout; abrupt smooth boundary.

R—72 cm; bedrock.

SOIL—Elliottsville SOIL Nos.—090392 LOCATION—Lynchtown Twp., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–7	Oa										
7–9	E	25.26	59.15	15.59	2.07	2.92	3.83	7.33	9.11	21.55	37.60
9–14	Bhs	22.29	55.26	22.45	2.49	2.84	3.31	6.06	7.59	21.72	33.54
14–19	Bh	32.02	50.20	17.78	5.11	5.27	5.20	7.70	8.74	18.23	31.97
19–29	Bs1	38.83	51.51	9.66	7.25	6.82	6.35	9.11	9.30	22.54	28.97
29–39	Bs2	42.74	48.81	8.45	9.49	7.71	7.02	9.56	8.96	21.45	27.36
39–55	BC1	39.77	49.90	10.33	8.26	6.69	6.51	9.05	9.26	24.37	25.53
55–72	BC2	41.51	49.31	9.18	8.12	7.53	6.95	9.65	9.26	20.12	29.19
	R										

Depth cm	Organic Carbon %	Water Content (Bar Pressures): BD g/cc	.06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	pH: $CaCl_2$ (2:1)	pH: H_2O (1:1)
0–7	35.50	0.15	198.1	192.8	182.3	178.3	172.2	122.3	79 9	74.0	66.8	0.19	2.85*	3.20*	3.60*
7–9	4.95	0.75	44.4	41.9	39.2	37.2	34.9	26.5	19.1	15.2	11.2	0.23	2.45	2.95	3.50
9–14	8.41	0.48	94.1	84.4	72.6	67.2	63.2	38.5	29.8	27.2	24.3	0.29	2.90	3.25	3.75
14–19	5.55	0.51	84.2	74.4	63.3	57.5	54.4	32.7	22.7	21.0	18.5	0.29	3.40	3.65	4.20
19–29	4.05	0.68	63.7	57.4	44.3	39.5	37.5	24.1	16.6	15.3	12.4	0.31	3.90	4.05	4.50
29–39	2.73	0.80	51.9	47.3	36.8	32.4	30.3	18.4	13.9	12.6	9.2	0.30	4.15	4.30	4.75
39–55	1.52	0.95	43.7	40.8	34.1	31.1	29.4	14.2	11.4	9 7	6.6	0.32	4.25	4 40	4.85
55–72	0.93	1.22	30.6	28.5	23.2	20.6	19.3	12.4	9 9	8.4	5.1	0.29	4.30	4.45	4.95

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–7	6.9	1.5	0.1	0 9	72.1	81.5	5.6	15.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3
7–9	1.2	0.3	0.0	0.1	26.3	27.9	7.5	9 1	0.0	19.2	0.0	2.7	2.5	1.6	1.7	2.0	29.7
9–14	1.0	0.3	0.0	0.1	61.2	62.6	16.6	18.0	0.0	0.0	0.0	1.5	0.5	0.5	0.8	1.4	4.7
14–19	0.5	0.2	0.0	0.1	48.5	49.3	9.5	10.3	0.0	0.0	0.0	0.0	0.4	0.2	1.0	1.4	3.0
19–29	0.1	0.0	0.0	0.1	36.9	37.1	4.75	4.95	2.4	0.0	0.4	0.4	0.3	0.7	1.2	2.4	7.8
29–39	0.1	0.0	0.0	0.0	28.0	28.1	2.55	2.65	4.4	1.4	2.1	1.4	0.9	1.1	2.3	3.8	17 4
39–55	0.1	0.0	0.0	0.0	18.3	18 4	1 85	1.95	0.0	3 7	0.4	1 4	0.9	1.3	3.0	4.2	14.9
55–72	0.1	0.2	0.0	0.0	12.4	12.7	1.0	1.3	0 0	1.5	0.4	2.2	1.5	1 8	3.3	4 6	15.3

*All pH determined at a solution:soil of 2.1: in this horizon

Soil Map Unit: Elliottsville
Soil Survey # 110192
Location: Elliottsville Plt., Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling and R.V. Rourke
Date: 08/92

Oa—0 to 3 cm; black (5YR 2.5/1) sapric material; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

E/B—3 to 5 cm; 60% light brownish gray (10YR 6/2) and 40% reddish brown (5YR 4/4) silt loam; weak and moderate very fine granular structure; very friable; many very fine, fine, medium and coarse roots throughout; abrupt wavy boundary.

Bh—5 to 10 cm; brown to dark brown (7.5YR 4/4) channery silt loam; weak very fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; clear wavy boundary.

Bs1—10 to 26 cm; 80% yellowish brown (10YR 5/6) and 20% light brownish gray (10YR 6/2) silt loam; weak very fine granular structure; very friable; many very fine, fine, and medium roots throughout; clear wavy boundary.

Bs2—26 to 39 cm; 87% dark yellowish brown (10YR 4/4), 10% dark gray (7.5YR N/4), and 3% dark brown to brown (7.5YR 4/4) very channery silt loam; weak fine granular structure; friable; common very fine, fine, and medium roots throughout; clear wavy boundary.

BC—39 to 63 cm; olive brown (2.5Y 4/4) silt loam; weak fine granular structure; friable; few very fine, fine, and medium roots throughout with a root mat at bedrock contact; abrupt smooth boundary.

R—63 cm; slate bedrock.

SOIL—Elliottsville SOIL Nos.—110192 LOCATION—Elliottsville Plt., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–3	Oa										
3–5	E/B	20.12	67.45	12.43	3.04	1.89	1.97	4.92	8 30	25.52	41.93
5–10	Bh	20.63	64.80	14.57	3.84	2.41	2.07	4 71	7 60	22 61	42.19
10–26	Bs1	23.12	66.87	10.01	5.34	2.94	2.35	4.90	7.59	23.36	43.51
26–39	Bs2	28.16	65.96	5.88	7.17	4.00	3.09	5.43	8.47	25.62	40.34
39–63	BC	33.29	61.36	5.35	8.31	5.30	4.10	6.80	8.78	25.10	36.26
	R										

Depth cm	Organic Carbon %	Water Content (Bar Pressures): BD g/cc	.06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
0–3	26.33	0.15	239.1	222.4	194.9	186.0	180.7	101.8	62.2	53.0	47.2	0 26	2.70*	3.15*	3.55*
3–5	7.07	0.52	80.0	74.6	63.7	57.1	52.0	32.3	22.8	18.5	14.9	0.31	2.75	3.15	3.70
5–10	6.19	0.59	78 5	73.1	60.6	53.3	48.0	33.4	27.0	21.4	15.5	0.34	3.15	3.50	4.05
10–26	4.06	0.84	54.0	51.0	44.5	39.9	35.1	24 5	17.6	13.4	9.6	0.35	3.70	4.00	4.55
26–39	2.31	1.05	40.5	38.9	34.2	30.7	27.3	17.7	14.0	10.7	7.8	0 33	4 00	4.30	4 75
39–63	2.61	0.99	50.9	48.9	41 4	34.8	30.2	15.7	12.7	10.3	7.8	0 41	4 20	4 35	4.80

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–3	2.3	1.1	0.1	0.8	62.5	66.8	9.6	13.9	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.6
3–5	0.2	0.2	0.0	0.1	38.2	38 7	14.8	15.3	0.0	0 0	0 0	2.2	0.0	0.6	0.5	1.6	4.9
5–10	0.1	0 1	0.0	0.1	41.1	41 4	11.6	11.9	22.8	0.0	0 0	0.0	0.2	0.1	0.7	1.1	24.9
10–26	0.1	0.0	0.0	0 0	27.3	27.4	5.95	6.05	0 9	0 6	2.4	1.5	0.7	1.3	2.2	2.8	12.4
26–39	0.1	0.0	0.0	0 0	21.7	21.8	3.15	3.25	25.1	2.2	0.0	1.7	1.0	1.1	2 0	3.1	36.2
39–63	0.0	0.0	0.0	0.0	25.2	25.2	2.2	2.2	0.0	0.0	1.1	0.7	0.8	0 9	1 6	2.9	8 0

*All pH determined at a soil solution of 2:1 in this horizon.

Soil Map Unit: Elliottsville
Soil Survey # 110292
Location: Shirley, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling and R.V. Rourke
Date: 08/92

Oa—0 to 9 cm; dark reddish brown (2.5YR 2.5/2) sapric material; weak fine granular structure; very friable; many very fine, fine, and medium roots throughout; abrupt wavy boundary.

E—9 to 12 cm; light brownish gray (10YR 6/2) silt loam; weak fine granular structure; very friable; many very fine, fine, and medium roots throughout; abrupt broken boundary.

Bhs—12 to 15 cm; dusky red (2.5YR 3/2) silt loam; moderate fine granular structure; very friable; many very fine, fine, and medium roots throughout; abrupt irregular boundary.

Bs1—15 to 32 cm; 95% dark reddish brown (5YR 3/4) and 5% pinkish gray (7.5YR 6/2) channery silt loam; weak fine granular with weak thin platy structure; very friable; many very fine, fine, and medium roots throughout; clear smooth boundary.

Bs2—32 to 46 cm; brown to dark brown (7.5YR 4/4) gravelly silt loam; weak fine granular structure; very friable; common very fine, fine, medium, and coarse roots throughout; clear smooth boundary.

BC—46 to 53 cm; 95% olive brown (2.5Y 4/4) and 5% dark reddish brown (2.5YR 2.5/2) silt loam; massive except weak fine granular structure in the dark reddish brown area; friable; few very fine, fine, and medium roots throughout; clear smooth boundary.

C—53 to 62 cm; light olive brown (2.5Y 5/4) gravelly silt loam; weak medium platy structure; friable; few very fine and very fine roots throughout; abrupt irregular boundary.

R— 62 cm. ; dark metamorphic bedrock.

SOIL—Elliottsville SOIL Nos —110292 LOCATION—Shirley, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–9	Oa										
9–12	E	25.58	66.72	7.70	3.28	2.86	3.16	6.46	9.82	31.76	34.96
12–15	Bhs	21.67	58.22	20.11	4.08	3.10	2.54	4.63	7.32	27.25	30.97
15–32	Bs1	27.63	60.16	12.21	7.83	4.69	3.38	4.84	6.89	27.67	32.49
32–46	Bs2	28.21	57.71	14.08	8.73	4.93	3.44	4 56	6.55	26.46	31.25
46–53	BC	31.33	57.30	11.37	10.76	5.34	3.63	4 81	6.79	27.42	29.88
53–62	C	39.37	51.30	9.33	11.82	7.15	6.09	5.99	8.32	27.79	23.51
	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	pH: $CaCl_2$ (2:1)	pH: H_2O (1:1)
0–9	36.64	0.25	165.0	155.8	132.4	125.4	121.0	119 7	94.4	75.7	63.5	0.23	2.55*	2.80*	3.35*
9–12	2.60	0.79	45.5	42.9	37.2	32.6	28.0	16.5	12.6	8.9	5.9	0.29	2.70	3.05	3.70
12–15	8.67	0.47	95.1	87.5	72.2	65.1	60.6	37.3	32.2	26.3	19.2	0.32	2.90	3.20	3.80
15–32	5.65	0.55	80.4	73.0	59.4	54.0	51.3	27.1	24.4	20.7	15.9	0.31	3.65	3.85	4.50
32–46	4.65	0.61	81.1	75.1	58.3	50.2	46.5	25.3	21.4	18.8	14.2	0.37	3.90	4.10	4.65
46–53	3.70	0.75	65.8	61.9	49.2	42.0	38.4	20.8	17 5	15.0	11.5	0.38	4.00	4.15	4.65
53–62	2.06	1.02	43.7	41.1	33.3	27.8	24.8	13.6	11.2	9.7	6.9	0.35	4.00	4.25	4.75

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–9	4.1	0.9	0.1	0.8	69.6	75.5	9.2	15.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4
9–12	0.4	0.1	0.0	0.1	17.4	18.0	5.95	6.55	0.0	5.2	3.5	2.0	0 4	0.8	0.6	0.7	13.2
12–15	0.6	0.2	0.0	0.1	53 6	54.5	14.1	15.0	0.0	0.0	0.0	4.9	0.8	1.0	1.9	2.5	11.1
15–32	0.2	0.1	0.0	0.1	45.7	46.1	8.8	9.2	20.8	0.5	1.2	1.0	0.8	0.8	1.7	2.5	29.3
32–46	0.1	0.0	0.0	0.1	41.2	41.4	5.0	5.2	4.4	2.0	1.2	2.1	1.6	1.8	3.1	5.0	21.2
46–53	0.1	0.0	0.0	0.0	34.7	34.8	3.75	3.85	0.0	0.0	1.2	1.2	2.0	1.8	2.9	3.7	12.8
53–62	0.1	0.0	0 0	0.0	22.2	22.3	2 4	2.5	0.0	1.3	2.3	3.4	2.0	3.2	4.4	6.8	23 4

*All pH determined at a solution:soil of 4:1 in this horizon.

Soil Map Unit: Peacham
Soil Survey # 130191
Location: Lower Enchanted Twp., Somerset County, Maine
Drainage Class: very poorly drained
Described by: J.W. Miller and R.V. Rourke
Date: 07/91

Oi—0 to 13 cm; slightly decomposed organic materials; many very fine, fine, and medium coarse roots throughout; abrupt irregular boundary.

Oa—13 to 23 cm; very dark brown (10YR 2/2) sapric material; weak fine granular structure; very friable; many very fine and fine roots throughout; clear wavy boundary.

Eg—23 to 32 cm; dark gray (5Y 4/1) gravelly loam; massive; friable; many coarse faint very dark gray (5Y 3/1) redoximorphic depletions and common medium prominent dark yellowish brown (10YR 3/6) redoximorphic concentrations; clear wavy boundary.

Bg—32 to 61 cm; olive brown (2.5Y 4/4) gravelly loam; strong very coarse prismatic structure; prism face is olive gray (5Y 5/2) with an edge color of dark yellowish brown (10YR 4/6); friable; common medium distinct grayish brown (2.5Y 5/2) redoximorphic depletions and prominent yellowish brown (10YR 5/6) redoximorphic concentrations; clear wavy boundary.

Cdg—61 to 100 cm; light olive brown (2.5Y 5/4) loam; strong very coarse prismatic structure; prism face is olive gray (5Y 5/2) with an edge color of dark yellowish brown (10YR 4/6); firm; common medium and coarse prominent gray to light gray (2.5Y N6/) redoximorphic depletions and prominent yellowish brown (10YR 5/6) redoximorphic concentrations.

Soi— Peacham SOIL Nos.—130191 LOCATION—Lower Enchanted, Maine

Depth cm	Hor-izon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
13–23	Oa										
23–32	Eg	43.86	45.28	10.86	8.90	8.18	7.44	10.60	8.74	17.02	28.26
32–61	Bg	46.61	44.44	8.95	10.01	9.40	7.84	10.46	8.90	17.26	27.18
61–100	Cdg	49.08	42.15	8.77	11.43	9.63	8.08	10.63	9.31	17.03	25.12

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1 1)	$CaCl_2$ (2:1)	H_2O (1:1)
13–23	27.55	0.19	298.8	276.5	235.5	215.7	213.1	87.7	80 1	65.2	64.0	0.40	4.35	4.75	4.95
23–32	1.70	1.55	24.8	24.5	24.0	23.1	22.4	14.8	11.5	9.0	6.3	0.28	4.55	5.00	5.75
32–61	0.20	1.79	15.5	15.2	14.8	14.2	13.8	9.1	7.1	5.6	3.5	0.21	4.60	5.15	6.05
61–100	0.17	1.81	13.8	13.5	13.3	12.8	12.3	9.5	7.2	5.6	3.5	0.18	4.70	5.30	6 10

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
13–23	48.0	7.4	0. 1	0.3	43.6	99.4	0.5	56.3	0.0	0.0	0.0	0.8	0.6	0.5	1.0	0.5	3.4
23–32	5.1	0.9	0.0	0.0	9.0	15.0	0.1	6.1	0.0	0.0	1.5	3.0	1.8	2.8	5.7	7.1	21.9
32–61	2.3	0.6	0.0	0.0	3.0	5.9	0.05	2.95	0.0	0.0	0.0	0.1	0.7	1.6	4.3	9.3	16.0
61–100	2.3	0.7	0.0	0.0	2.8	5.8	0.05	3.05	0 0	0.0	0.0	0.6	0.6	1.4	4.0	6.4	13.0

Soil Map Unit: Peacham
Soil Survey # 130291
Location: Carrying Place Twn., Somerset County, Maine
Drainage Class: very poorly drained
Described by: J.W. Miller and R.V. Rourke
Date: 07/91

Oi—0 to 15 cm; slightly decomposed organic matter; many very fine, fine, and medium roots throughout; abrupt wavy boundary.

Oa—15 to 33 cm; black (10YR 2/1) muck; moderate fine and medium granular structure; very friable; many very fine and fine roots throughout; abrupt wavy boundary.

Eg—33 to 41 cm; very dark grayish brown (10YR 3/2) silt loam; moderate very coarse prismatic structure separating to weak medium platy; friable; prism face black (2.5Y N2/); few medium distinct dark yellowish brown (10YR 4/6) redoximorphic concentrations; common very fine and fine roots throughout and many fine and very fine roots in prism face; clear wavy boundary.

Bg—41 to 61 cm; olive brown (2.5Y 4/3) silt loam; moderate very coarse prismatic structure; firm; prism face olive gray (5Y 5/2) with yellowish brown (10YR 5/6) edge; common medium and coarse prominent dark yellowish brown (10YR 4/6) redoximorphic concentrations and distinct olive gray (5Y 5/2) redoximorphic depletions; many very fine and fine roots in the prism face; gradual wavy boundary.

Cdg—61 to 100 cm; olive brown (2.5Y 4/4)silt loam; moderate very coarse prismatic structure; firm; prism face greenish gray (5GY 5/1) with dark yellowish brown (10YR 4/6) edge.

Soil—Peacham SOIL Nos.—130291 LOCATION—Carrying Place Twn., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
15–33	Oa										
33–41	Eg	38.12	54.63	7.25	4 51	4.75	5.79	10.76	12.31	19.95	34.68
41–61	Bg	34.64	54.83	10.53	3.52	4.87	5.87	9.85	10.53	19.39	35.44
61–100	Cdg	37.30	53.82	8.88	3.65	5.30	6.01	10.48	11.86	17.57	36.25

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
15–33	46.78	0.16	432.5	409.2	366.5	347.3	344.5	85.7	73.3	66.7	63.6	0.55	2.85	3.20	3.70
33–41	5.32	1.44	30.2	29.9	29.4	28.0	26.6	19.1	15.3	11.2	10.7	0.28	3.35	3.55	4.25
41–61	0.48	1.74	18.7	18.2	17.7	16.9	16.4	12.7	9.4	6.8	3.8	0.25	3.80	4.05	4.85
61–100	0.16	1.75	16.0	15.6	15.1	14.4	14.0	11.6	8.2	6.0	3.2	0.22	3.70	4.30	5.05

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
15–33	6.2	1.6	0.1	0.3	65.1	73.3	7.8	16.0	0.0	0.0	0.0	0 1	0.0	0.0	0.0	0.0	0.1
33–41	0.4	0.1	0.0	0.0	30.4	30.9	7.0	7.5	0.0	0.0	1.4	0 7	0.6	1.4	1.8	1.0	6.9
41–61	0.4	0.1	0.0	0.0	9.1	9.6	1.7	2.2	0.0	0.5	0.8	0.6	0.9	1.5	1.9	3.1	9.3
61–100	1.1	0.3	0.0	0.0	4.4	5.8	0.9	2.3	0.0	0.0	0.3	1 6	1.0	0.9	1.2	2.1	7.1

Soil Map Unit: Peacham
Soil Survey # 130391
Location: Pleasant Ridge Plt., Somerset County, Maine
Drainage Class: very poorly drained
Described by: J.W. Miller and R.V. Rourke
Date: 08/91

Oi—0 to 8 cm; slightly decomposed organic matter; many very fine and fine and common medium roots throughout; abrupt wavy boundary.

Oa—8 to 21 cm; black (10YR 2/1) muck; weak very fine granular structure; moderately smeary; many very fine and fine and common medium roots throughout; abrupt smooth boundary.

Eg—21 to 32 cm; grayish brown (2.5Y 5/2) gravelly loam; massive; friable; abrupt wavy boundary.

Bg1—32 to 35 cm; 60 % grayish brown (2.5Y 5/2) and 40% very dusky red (2.5YR 2.5/2) gravelly fine sandy loam; massive; weakly smeary; abrupt smooth boundary.

Bg2—35 to 60 cm; light olive brown (2.5Y 5/4) loam; moderate very coarse prismatic structure; friable; prism face olive gray (5Y 5/2) with edge yellowish brown (10YR 5/6); many coarse faint yellowish brown (10YR 5/4) redoximorphic concentrations and faint light brownish gray (2.5Y 6/2) redoximorphic depletions; clear wavy boundary.

Cdg—60 to 100 cm; light olive brown (2.5Y 5/4) loam; moderate very coarse prismatic structure; friable; common fine distinct light olive gray (2.5Y 6/2) redoximorphic depletions and faint olive brown (2.5Y 4/4) redoximorphic concentrations.

Soil—Peacham SOIL Nos —130391 LOCATION—Pleasant Ridge Plt., Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0 002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0 25)	Fine (0.25–0 1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
8–21	Oa										
21–32	Eg	48.09	43 97	7 94	3.20	5.03	9.55	15.09	15.22	22.43	21.54
32–35	Bg1	55 19	40 36	4.45	4.14	6.01	11 63	17.85	15.56	23.20	17.16
35–60	Bg2	47.43	43 84	8.73	3.38	5.56	8.79	15.70	14.00	20 12	23.72
60–100	Cdg	47 83	39 97	12.20	4 46	6.70	8 92	15.72	12.03	15.73	24.24

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): 06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2:1)	H_2O (1:1)
8–21	47.90	0.10	598.1	558.1	486.6	462 9	447 7	192 9	99.1	84 3	71 3	0 49	2.85	3.25	3.55
21–32	4.65	1 09	48.4	46 8	43.3	38.0	34.9	16.5	14.8	13.1	12.2	0.38	3.90	4.35	5.05
32–35	2.58	0.85	64.2	60 2	54.4	50.5	48.1	12.0	11.3	8.8	7.5	0 45	3 10	3.65	4 30
35–60	0.28	1.58	23.5	22.4	18 6	14.9	12.9	9.2	7 4	5 8	3.7	0.30	4 25	4 95	5.95
60–100	0.08	1.91	14.2	14.0	13.6	12.9	12 2	9.5	7 9	6 5	4.2	0.19	4 25	5 40	6 25

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
8–21	6.1	2.1	0.1	0.3	58.7	67.3	8 65	17.25	4 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
21–32	1.2	0.3	0.0	0.0	18 4	19.9	2.75	4 25	2 8	11 6	3.7	7 1	1.6	1.2	0 9	0 7	29.6
32–35	3.6	0.5	0 0	0 0	39 2	43.3	7 8	11.9	0 0	0.0	1.4	6.9	3 1	3.4	3 3	3 9	22.0
35–60	2.6	0 4	0.0	0.1	5.2	8 3	0.35	3.45	0.0	0.7	0 0	0.5	0 5	0 9	1 5	2.5	6 6
60–100	3.3	0 6	0.0	0 1	2.5	6 5	0.2	4 2	0.0	0.4	0.2	0.4	0 4	0 6	1.1	2.0	5.1

Soil Map Unit: Peacham
Soil Survey # 110191
Location: Brownville, Piscataquis County, Maine
Drainage Class: very poorly drained
Described by: L. Flewelling and R.V. Rourke
Date: 08/91

Oi—0 to 9 cm; slightly decomposed organic material; many very fine, fine and common medium and coarse roots throughout; abrupt smooth boundary.

Oa–9 to 20 cm; black (10YR 2/1) muck; weak fine granular structure; very friable; many very fine, fine, and common medium and coarse roots throughout; abrupt smooth boundary.

Eg1—20 to 28 cm; dark grayish brown (10YR 4/2) very cobbly coarse sandy loam; massive; very friable; common medium and coarse distinct dark brown (7.5YR 3/2) redoximorphic concentrations; common very fine and fine roots throughout; abrupt irregular boundary.

Eg2—28 to 46 cm; 60% dark grayish brown (10YR 4/1) and 40% dark grayish brown (2.5Y 4/2) coarse sandy loam; massive; friable; few fine prominent dark brown to brown (7.5YR 4/4), common coarse distinct dark brown (7.5YR 3/2) redoximorphic concentrations, and common coarse prominent dark gray (5Y 4/1) redoximorphic depletions; abrupt smooth boundary.

Bg—46 to 70 cm; gray (5Y 5/1) fine sandy loam; moderate very coarse prismatic structure; firm; few fine prominent dark reddish brown (5YR 3/4), common medium strong brown (7.5YR 4/6) redoximorphic concentrations, and common coarse olive (5Y 5/3) redoximorphic depletions; gradual wavy boundary.

Cdg—70 to 100 cm; gray (5Y 5/1) fine sandy loam; weak very coarse prismatic structure; firm; many coarse prominent strong brown (7.5YR 4/6), and few fine reddish brown (5YR 4/4) redoximorphic concentrations.

Soil—Peacham SOIL Nos.—110191 LOCATION—Brownville, Maine

Depth	Horizon	Sand	Silt	Clay	Sands: Very Coarse	Coarse	Medium	Fine	Very Fine	Coarse Silt	Fine Silt
cm		(2–0.05)	(0.05–0.002)	(<0.002)	(2–1)	(1–0 5)	(0 5–0.25)	(0.25–0.1)	(0.1–0.05)	(0.05–0.02)	(0.02–0.002)
		Pct. of < 2 mm									
9–20	Oa										
20–28	Eg1	74.98	19.43	5.59	7.26	22.19	19 12	16.07	10.34	10.25	9.18
28–46	Eg2	71.24	23.78	4 98	6.60	21.21	17.90	16.84	8 69	13.44	10.34
46–70	Bg	52.87	42.71	4 42	5.15	8.61	9.92	15.43	13.76	24.71	18.00
70–100	Cdg	52.09	43.12	4 79	6.00	8.13	9.57	14.72	13.67	23.60	19.52

Depth	Organic Carbon	BD	Water Content (Bar Pressures): .06	.1	.33	.67	1	2	3	5	15	Avail. H_2O	pH: KCl	$CaCl_2$	H_2O
cm	%	g/cc	%	%	%	%	%	%	%	%	%	cm/cm	(1:1)	(2:1)	(1:1)
9–20	40.29	0.14	451.5	419.6	366.2	353.7	350.6	128 3	98.2	82.5	71.2	0 49	2.85	3.10	3.65
20–28	2.29	0.94	39.4	36.1	30.2	23.3	20.9	9.4	7.7	6.2	6.0	0.28	3.45	3.65	4.40
28–46	1.17	1 51	20.7	19.3	17.0	13 4	12.0	7.1	5.4	4.5	3.1	0.24	3.95	4.10	5.15
46–70	0.14	1.84	14.5	13.7	12.1	9.5	8 3	4.6	3.4	2 9	1 9	0.22	4.30	5.05	6.10
70–100	0.06	2.04	11.6	11.4	11.1	10.6	9.6	4.6	3 3	2 7	1 8	0.20	4.85	5.70	6.75

Depth	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
cm	me/100g																
9–20	4 1	2.4	0.2	0.8	63.8	71.3	9.25	16.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20–28	0.3	0.2	0.0	0.0	13.5	14.0	3.3	3.8	35.8	0.0	2.4	6.5	4.6	4.9	4.6	2.1	60.9
28–46	0.3	0.1	0.0	0.0	10.1	10.5	1.7	2.1	0.0	0.0	0.4	2.2	1.1	2.5	2.8	2.3	11.3
46–70	1.1	0.4	0.0	0.0	1.5	3.0	0 25	1 75	0.0	0.0	0.0	0.4	0.4	1.0	2.4	4.0	8.2
70–100	1.3	0.5	0.0	0.0	0.6	2.4	0.1	1 9	0 0	0.0	0.5	0.2	0.4	1.7	2.7	5.0	10.5

Map Unit: Peacham
Soil Survey # 110291
Location: Parkman, Piscataquis County, Maine
Drainage Class: very poorly drained
Described by: L. Flewelling and R.V. Rourke
Date: 08/91

Oi—0 to 20 cm; slightly decomposed organic material; many very fine, fine, medium, and coarse roots throughout; abrupt smooth boundary.

Oa—20 to 22 cm; black (10YR 2/1) muck; weak fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; abrupt wavy boundary.

Eg1—22 to 40 cm; 60% gray (10YR 5/1), and 40% dark gray (10YR 4/1) cobbly silt loam; massive; friable; few medium prominent dark reddish brown (5YR 3/2) and common medium and coarse light olive brown redoximorphic concentrations, and few medium and coarse distinct gray to light gray (N6/) redoximorphic depletions; clear wavy boundary.

Eg2—40 to 52 cm; gray (5Y 5/1) silt loam; massive; friable; few fine prominent dark reddish brown (5YR 3/4) and common medium and coarse yellowish brown (10YR 5/4) redoximorphic concentrations; abrupt wavy boundary.

Bg—52 to 65 cm; greenish gray (5GY 5/1) silt loam; massive; firm; common medium and coarse prominent reddish brown (2.5YR 4/4) and few yellowish brown (10YR 5/4) redoximorphic concentrations; gradual wavy boundary.

Cdg—65 to 100 cm; gray (N5/) silt loam; massive, firm; few fine and medium prominent brown (10YR 5/3) redoximorphic concentrations and common medium and coarse distinct reddish brown (2.5Y 5/2) redoximorphic depletions.

Soil—Peacham SOIL Nos.—110291 LOCATION—Parkman, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct of < 2 mm									
20–22	Oa										
22–40	Eg1	35.49	59.03	5.48	3.42	3 95	5.20	9.52	13.40	30.88	28.15
40–52	Eg2	39.12	56.12	4.76	3.48	4.89	5.85	11.42	13.48	30.01	26.11
52–65	Bg	28.70	69.81	1.49	1.76	2.74	4.00	8.72	11.48	33.23	36.58
65–100	Cdg	29.46	65.69	4.85	1.65	2.74	3.98	9.07	12.02	27.59	38.10

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1 1)	$CaCl_2$ (2:1)	H_2O (1:1)
20–22	20.91	0.34	261.3	238.5	185.6	176.3	172.3	68.7	50.6	42.1	35.5	0.69	2.80	3.05	3.60
22–40	1.33	1.44	29.4	28.8	27.8	21.5	16.8	8.9	8.0	6.1	5.6	0.33	3.20	3.75	4.60
40–52	0.43	1.68	21.2	20.7	19.6	14.9	12.0	6.7	4.9	3.8	3.0	0.30	3.90	4.35	5.40
52–65	0.16	1.81	17.5	17.1	16.5	14.3	11.3	5.6	3.8	2.8	2.0	0.27	4.20	4.80	5.75
65–100	0.30	1.85	16.6	16.2	15.9	14.5	11.8	5.7	3.9	2.8	2.0	0.26	3.55	3.85	3.90

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
20–22	2.2	0.6	0.1	0.4	44.2	47.5	6.65	9.95	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.4
22–40	0.9	0.2	0.0	0.0	11.4	12.5	5.35	6.45	22 0	1 6	0.3	1.5	0.4	0.2	0.4	0.7	27.1
40–52	0.7	0.2	0.0	0.0	5.6	6.5	1.4	2.3	0.0	0.0	0.2	0.0	0.0	0.2	0.3	1.1	1.8
52–65	0.7	0.2	0.0	0.0	1.4	2.3	0.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.7
65–100	0.9	0.3	0.0	0.0	2.4	3.6	1.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.9

Soil Map Unit: Penquis
Soil Survey # 110187
Location: Sebec, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling, K.J. LaFlamme, and R.V. Rourke
Date: 08/87

Ap—0 to 18 cm; dark brown (10YR 3/3) silt loam, light yellowish brown (10YR 6/4) dry; strong fine granular structure; very friable; many very fine, common fine, few medium and coarse roots throughout; abrupt smooth boundary.

Bs1—18 to 37 cm; dark brown (7.5YR 4/4) gravelly silt loam; weak very fine and fine granular structure; very friable; many very fine and fine roots throughout; abrupt wavy boundary.

Bs2—37 to 40 cm; dark brown to brown (10YR 4/4) gravelly silt loam; weak fine subangular blocky and very fine granular structure; very friable; common very fine roots throughout; abrupt smooth boundary.

BC—40 to 52 cm; olive brown (2.5Y 4/4) gravelly silt loam; weak very fine subangular blocky structure; friable; common very fine roots throughout; abrupt irregular boundary.

R—52 cm; phyllite bedrock.

Soil—Penquis SOIL Nos.—110187 LOCATION—Sebec, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–18	Ap	25.10	63.02	11.88	4.94	4.39	3 25	5.22	7.30	21.76	41.26
18–37	Bs1	26.52	62.87	10.61	4 55	4.67	3.87	5.55	7.88	24.38	38 49
37–40	Bs2	28.70	64.50	6.80	4.51	5.51	4.49	6.21	7 98	22.57	41.93
40–52	BC	32.27	59.24	8.49	4.56	5.55	5.58	7.59	8.99	22.35	36.89
52+	R										

Depth cm	Organic Carbon %	Water Content (Bar Pressures): BD g/cc	.06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	pH: $CaCl_2$ (2:1)	pH: H_2O (1:1)
0–18	5.47	0.68	58.2	56.1	49.1	46.7	45.2	28.7	23 6	23 2	21.7	0.23	4.30	4.65	5.55
18–37	2.77	0.86	57.4	54.0	42.0	32.7	30.9	25.5	16.4	15.1	14.0	0.34	4.45	4.90	5.95
37–40	2.78	0.80	60.4	56.8	45.0	34.3	30.6	19 1	15.3	13.9	13.3	0.35	4.50	5.05	5.85
40–52	2.34	0.78	60.0	55.3	42.8	32.7	28.7	19.7	11.9	11.1	10.4	0.35	4.55	4.90	5.75

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–18	2.3	0.2	0.0	0.2	22.0	24.7	1.55	4.25	0.0	1.3	0.5	0.8	0.9	1 4	2.3	3.7	10.9
18–37	1.1	0.1	0.0	0 1	18.1	19.4	0 9	2.2	4.6	1.0	0 5	1.0	1.1	1.5	2.9	5.0	17.6
37–40	0.7	0.0	0.0	0.0	21.9	22.6	0.9	1.6	0.0	0.0	0 0	3.2	1.8	3.9	6.8	9.9	25.6
40–52	0.5	0.0	0.0	0.0	18.8	19 3	0.9	1 4	2.2	1.9	1.1	1 6	1 9	2.5	4 1	5.9	21.2

Soil Map Unit Penquis
Soil Survey # 110287
Location: Sangerville, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling, K.J. LaFlamme, and R.V. Rourke
Date: 087/87

Ap—0 to 12 cm; dark brown to brown (10YR 4/3) silt loam; weak very fine granular structure; very friable; common very fine and fine, few medium and coarse roots throughout; abrupt smooth boundary.

B/E—12 to 28 cm; 80% dark reddish brown (5YR 3/3) and 20% grayish brown (10YR 5/2) silt loam; weak very fine granular and thin platy structure; friable; few very fine and fine roots throughout; clear wavy boundary.

Bs1—28 to 35 cm; reddish brown (5YR 4/46) silt loam; weak very fine subangular blocky structure; friable; few very fine, fine, and medium roots throughout; clear smooth boundary.

Bs2—35 to 47 cm; dark brown to brown (7.5YR 4/4) silt loam; weak very fine subangular blocky structure; friable; few very fine, fine, and medium roots throughout; abrupt irregular boundary.

BC—47 to 49 cm; olive brown (2.5Y 4/4) gravelly silt loam; massive; firm; few very fine, fine, and medium roots throughout; abrupt smooth boundary.

R—49 cm; bedrock.

Soil—Penquis SOIL Nos.—110287 LOCATION—Sangerville, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–12	Ap	22.51	68.48	9.01	3.05	2 96	3.00	5 50	8.00	29.08	39.40
12–28	B/E	18.11	69 00	12.89	2.58	2 26	3.17	7.48	2 62	36.27	32.73
28–35	Bs1	25.73	64.59	9.68	2 22	2.84	3 81	7.38	9 48	27.64	36.95
35–47	Bs2	27.77	63.27	8.96	2 47	2.82	3.59	7 94	10.95	28.37	34.90
47–49	BC	28.85	66.18	4.97	2.83	3.31	3.83	7.82	11.06	31.17	35.01
49+	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1 1)	$CaCl_2$ (2:1)	H_2O (1 1)
0–12	4.08	0.65	57.8	54.2	40.9	36.3	34.6	24.7	19 3	18 1	16.7	0.24	4 00	4.25	4.90
12–28	3.42	0.68	77.0	71.6	54.6	48.1	44.5	23.9	18 5	17.6	16.6	0.37	4.10	4.40	5.00
28–35	3.45	0.65	93.2	84.8	64.7	54.8	52.4	24.9	19.8	18.3	17.5	0.44	4.35	4 55	5.05
35–47	2.08	0.68	77.9	67.5	51.1	42.2	38.2	23.8	13.2	11.9	10.8	0.39	4.50	4.70	5.20
47–49	2 06	1.05	43.4	40.2	32 8	28.9	24.2	15.7	11.7	10.5	10 0	0.32	4.55	4.80	5.20

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–12	0.5	0.1	0.0	0.1	26 4	27.1	3 4	4.1	0.0	0.0	0.4	0.7	0.5	0.8	1 5	2.8	6 7
12–28	0.7	0.1	0.0	0.0	31.4	32.2	4 1	4 9	2.2	1.5	0.1	0.5	0.5	0.9	1.1	1.7	8.5
28–35	0.2	0.0	0.0	0.0	31.6	31.8	2 05	2 25	0.0	0.0	0.6	1.4	1.1	1.2	1 9	3.9	10.1
35–47	0.1	0.0	0.0	0.0	22.1	22.2	1.15	1.25	0 0	0.0	1.6	3.2	0 9	1.3	1 7	3.8	12.5
47–49	0.1	0.0	0.0	0 0	20.2	20.3	0 95	1.05	0 0	6.7	3.8	2.9	2 4	1.6	2.6	6 7	26.7

Soil Map Unit. Penquis
Soil Survey # 110387
Location: Sangerville, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling, K.J. LaFlamme, and R.V. Rourke
Date: 08/87

Ap1—0 to 10 cm; dark brown to brown (10YR 4/3) silt loam; strong very fine and fine granular structure; very friable; common very fine, fine, and medium, and few coarse roots throughout; abrupt smooth boundary.

Ap2—10 to 18 cm; dark brown to brown (10YR 4/3) silt loam; moderate thin and medium platy structure; friable; common very fine, fine, and medium roots throughout; abrupt smooth boundary.

Bs—18 to 30 cm; dark brown to brown (7.5YR 4/4) silt loam; weak thin and medium platy structure; friable; few very fine, fine, and medium roots throughout; clear smooth boundary.

BC—30 to 43 cm; light olive brown (2.5Y 4/4) gravelly silt loam; weak thin and medium platy separating to weak very fine subangular blocky structure; friable; few very fine, fine, and medium roots throughout; clear smooth boundary.

C—43 to 59 cm; olive (5Y 4/3) gravelly silt loam; weak thin and medium platy structure; firm; few very fine and fine roots throughout with a mat of fine roots at the bedrock contact; abrupt smooth boundary.

R—59 cm; bedrock.

Soil—Penquis SOIL Nos.—110387 LOCATION—Sangerville, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–10	Ap1	26.33	63.36	10.31	5.04	4.16	3.66	5.79	7.68	24.51	38.85
10–18	Ap2	25.77	63.94	10.29	4.39	4.23	3.72	5.67	7.76	22.34	41.60
18–30	Bs	25.20	64.90	9.90	4.16	4.02	3.67	5.69	7 66	26.03	38.87
30–43	BC	25.27	58.79	15.94	3.73	4 22	3.86	6.01	7.45	19 03	39.76
43–59	C	26.81	53.67	19.52	4.40	4 54	3.95	6.36	7.56	20.05	33.62
59+	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2 1)	H_2O (1:1)
0–10	4.38	0.71	59.6	55.9	46.8	41.0	37.8	28.0	21.6	18.7	17.4	0.27	4.35	4.90	5.70
10–18	3.43	0.83	53.5	51.5	41.1	36.3	34 1	23.5	17.3	15.5	14.0	0.31	4.40	5.00	5.60
18–30	2.70	0.72	79.2	72.7	56.4	48.3	43.5	22.4	19.3	16.1	13.7	0.42	4.55	5.00	5.80
30–43	1.25	0.90	52.9	51.9	42.4	34.8	30.5	15.8	13.5	11.1	8.8	0.39	4.55	5.05	5.65
43–59	0 36	1.10	40.2	39 2	33.5	29.7	25.4	14.1	11.1	8.8	6.0	0.37	4.45	4.85	5.85

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–10	3.4	0.4	0.0	0.3	20.2	24.3	1.0	5.1	0.0	0.0	0.0	0.4	0.5	0.5	1.7	4.2	7.3
10–18	2.3	0.2	0.0	0.2	17.5	20.2	0.95	3 65	0.0	0.0	0.4	1.0	0.4	0.7	3.5	7.7	13.7
18–30	1.3	0.1	0.0	0.1	19.3	20 8	0.9	2.4	0.0	2.2	0 8	0 6	0.6	0.8	2.1	4.6	11 7
30–43	0.3	0.0	0.0	0.1	11.9	12.3	0.6	1.0	0.0	0 9	0.9	1.2	1 1	2.2	5 4	10.9	22.6
43–59	0.3	0.0	0.0	0.1	6.5	6 9	0.55	0 95	0.0	0.0	1 2	1.0	1.2	1.4	3.1	10.3	18.2

Soil Map Unit: Penquis
Soil Survey # 110487
Location: Dover-Foxcroft, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling, K.J. LaFlamme, and R.V. Rourke
Date: 08/87

Ap1—0 to 11 cm; dark brown to brown (10YR 4/3) silt loam; strong fine and medium granular structure; very friable; many very fine and fine, common medium roots throughout; abrupt smooth boundary.

Ap2—11 to 19 cm; dark brown to brown (10YR 4/3) gravelly silt loam; moderate thin platy structure; friable; common very fine and fine roots throughout; abrupt smooth boundary.

BC—19 to 43 cm; light olive brown (2.5Y 5/4) gravelly silt loam; weak medium platy structure; friable; common very fine and fine roots throughout; areas of discontinuous Bs yellowish red (5YR 4/6) and strong brown (7.5YR 5/6) as well as a trace of E light brownish gray (10YR 6/2); gradual smooth boundary.

C—43 to 55 cm; olive brown (2.5Y 4/4) gravelly silt loam; weak coarse platy structure; firm; few very fine and fine roots in cracks; abrupt irregular boundary.

R—55 cm: bedrock with pockets of weathered material having yellowish red (5YR 4/6), dark brown to brown (7.5YR 4/4), and yellowish brown (10YR 5/8) colors.

Soil—Penquis SOIL Nos.—110487 LOCATION—Dover Foxcroft, Maine

Depth cm	Horizon	Sand (2–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Sands: Very Coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very Fine (0.1–0.05)	Coarse Silt (0.05–0.02)	Fine Silt (0.02–0.002)
		Pct. of < 2 mm									
0–11	Ap1	29.10	58.05	12.85	4.01	4.80	4.56	7.71	8.02	21.61	36.44
11–19	Ap2	27.60	59.27	13.13	3.72	4.42	4.17	7.45	7.84	21.14	38.13
19–43	BC	29.14	52.97	17.89	4.71	4.99	5.10	7.75	6.59	16.14	36.83
43–55	C	28.34	55.77	15.89	4.51	5.18	4.81	7.35	6.49	11.52	44. 25
55+	R										

Depth cm	Organic Carbon %	BD g/cc	Water Content (Bar Pressures): .06 %	.1 %	.33 %	.67 %	1 %	2 %	3 %	5 %	15 %	Avail. H_2O cm/cm	pH: KCl (1:1)	$CaCl_2$ (2.1)	H_2O (1:1)
0–11	3.65	0.97	50.1	48.9	42.0	39.3	36.6	26.9	21.7	17.6	15.2	0.33	5.25	6.00	6.55
11–19	3.02	1.01	45.8	43.3	38.7	34.7	31.9	26.7	20.3	17.5	12.2	0.31	5.15	5.95	6.55
19–43	0.87	1.09	42.8	41.3	36.2	33.0	30.0	17.7	14.8	12.2	7.6	0.37	4.70	5.35	6.20
43–55	0.36	1.26	33.7	32.7	28.7	26.4	24.2	16.7	13.8	10.8	6.6	0.33	4.50	5.15	5.90

Depth cm	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments (Width in mm): >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
	me/100g																
0–11	7 8	0.2	0.0	0.2	12.9	21.1	0.1	8.3	0.0	0.0	0.0	0.9	0.7	1.0	2.3	6.1	11.0
11–19	5.7	0.0	0.0	0.1	14.3	20.1	0.2	6.0	0.0	0.0	0.4	1.6	0.9	1.2	3.3	7.6	15.0
19–43	1.1	0.0	0.0	0.2	9.4	10.7	0.55	1.85	8.6	0.8	0.4	1.2	0.8	1.5	3.5	9.3	26.1
43–55	0.5	0.0	0.0	0.3	7.4	8.2	0.5	1.3	0.0	2.5	0.4	1.4	1.1	1.8	4.6	15.7	27.5

Soil Map Unit: Penquis
Soil Survey # 110587
Location: Dover-Foxcroft, Piscataquis County, Maine
Drainage Class: well drained
Described by: L. Flewelling, K.J. LaFlamme, and R.V. Rourke
Date: 08/87

Oe—0 to 4 cm; very dark brown (10YR 2/2) moderately decomposed organic material; weak fine granular structure; very friable; many very fine and fine, common medium, and few coarse roots throughout; abrupt wavy boundary.

Ap1—4 to 14 cm; dark brown (10YR 3/3) silt loam; pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many very fine and fine, and common medium roots throughout; abrupt smooth boundary.

Ap2—14 to 25 cm; 98% dark brown to brown (10YR 4/3) and 2% light brownish gray (10YR 6/2) silt loam; weak thin and medium platy separating to weak very fine granular structure; friable; common very fine and fine, and few medium roots throughout; clear wavy boundary.

Bs—25 to 38 cm; reddish brown (5YR 4/4) gravelly silt loam; weak very fine granular structure; very friable; common very fine and fine, and few medium roots throughout; clear wavy boundary.

BC—38 to 57 cm; olive brown (2.5Y 4/4) silt loam; weak thin platy structure; friable; few very fine and fine roots throughout; clear smooth boundary.

C—57 to 93 cm; olive (5Y 4/4) gravelly silt loam; massive; friable; few very fine and fine roots in cracks; abrupt irregular boundary.

R—93 cm; bedrock.

Soil—Penquis SOIL Nos.—110587 LOCATION—Dover Foxcroft, Maine

Depth	Horizon	Sand	Silt	Clay	Sands: Very Coarse	Coarse	Medium	Fine	Very Fine	Coarse Silt	Fine Silt
cm		(2–0.05)	(0.05–0.002)	(<0.002)	(2–1)	(1–0.5)	(0.5–0.25)	(0.25–0.1)	(0.1–0.05)	(0 05–0.02)	(0.02–0.002)
		Pct. of < 2 mm									
0–4	Oe										
4–14	Ap1	30.80	57.83	11.37	5.76	5.31	4.68	6.86	8.19	30.48	27.35
14–25	Ap2	31.28	61 74	6 98	5.74	5.10	4.47	7.03	8.94	22.13	39.61
25–38	Bs	37.63	52.90	9.47	9.99	8.03	5.57	6.79	7.25	19.90	33.00
38–57	BC	39.60	55.29	5.11	8.42	7.46	6.08	8.31	9.33	23.65	31.64
57–93	C	45.22	51.00	3.78	10.01	8.95	7.03	9.63	9.60	23.33	27.67
93+	R										

Depth	Organic Carbon	BD	Water Content (Bar Pressures): .06	.1	.33	.67	1	2	3	5	15	Avail H_2O	pH: KCl	$CaCl_2$	H_2O
cm	%	g/cc	%	%	%	%	%	%	%	%	%	cm/cm	(1 1)	(2:1)	(1:1)
0–4	48.56	0.23	187.6	171.1	165.9	157.1	146.4	139.6	113.9	96.5	82 3	0.20	3.20	3.40	4.95
4–14	4.70	0.64	68.0	65.6	44.4	40.6	38.1	24.8	22.0	17.6	14.9	0.32	4.05	4.15	4.90
14–25	3.14	0.80	66.9	58.5	43.0	35.8	31.5	27.0	20.3	14.4	12.2	0.37	4.10	4.45	5.25
25–38	2.72	0.58	91.0	86.1	60.6	52.9	49.3	19.3	16.9	14.8	12.6	0.43	4.45	4.65	5.35
38–57	1.33	0.91	50.8	47.7	34.1	25.5	21.9	12.5	10.2	9.1	7.4	0.37	4.65	4.90	5.80
57–93	0.44	1.20	32.5	31.3	24.0	18.1	14.2	6.8	5.3	4.6	3.9	0.33	4.60	5.25	5.85

Depth	Ca	Mg	Na	K	Ext Acid	KCl CEC	Al+H	ECEC	Volume—% Rock Fragments: >76	76–51	51–38	38–25	25–19	19–13	13–6	6–2	Total
cm	me/100g								(Width in mm)								
0–4	8.0	1.3	0.1	1.4	57.9	68.7	7.1	17.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3
4–14	0.3	0.1	0.0	0 1	25.9	26.4	3.7	4 2	0.0	0.0	0.0	0.3	0.2	0.6	1.9	3.4	6.4
14–25	0.2	0.0	0.0	0.0	20.7	20.9	2.35	2.55	0.0	0.6	0.6	0.2	0.9	1.3	3.0	5.4	12.0
25–38	0.2	0.0	0.0	0.0	22.9	23.1	1.25	1.45	1.9	0.2	0.6	2.2	1.5	2.1	4 4	6.4	19.3
38–57	0.1	0.0	0.0	0.0	12.1	12.2	0.5	0.6	0.0	0.0	0.2	0 3	0.7	1.5	2.8	6.7	12.2
57–93	0.1	0.0	0.0	0.0	5 1	5.2	0.25	0.35	0.5	2.0	1.9	2.9	0.8	3.4	3.9	6.7	22.1