



Soils of NS 1922

REPORT NO. 30 OF THE ONTARIO SOIL SURVEY

Prepared by Research Branch, Canada Department of Agriculture
and the Ontario Agricultural College.



SOIL ASSOCIATIONS of SOUTHERN ONTARIO

CANADA DEPARTMENT OF AGRICULTURE, OTTAWA
ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO

SOIL ASSOCIATIONS of SOUTHERN ONTARIO

by

D. W. Hoffman

B. C. Matthews

Ontario Agricultural College

and

R. E. Wicklund

Canada Department of Agriculture

GUELPH, ONTARIO

April, 1964

REPORT NO. 30 OF THE ONTARIO SOIL SURVEY

Prepared by Research Branch, Canada Department of Agriculture
and the Ontario Agricultural College.

CANADA DEPARTMENT OF AGRICULTURE, OTTAWA
ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO

ACKNOWLEDGMENT

The authors gratefully acknowledge the assistance of other officers of the Ontario Soil Survey and several members of the Department of Soil Science, Ontario Agricultural College. The aid of Dr. A. Leahey, Associate Director (Pedology), Research Branch, Ottawa, and Dr. P. C. Stobbe, Director, Soil Research Institute, Ottawa, is greatly appreciated.

The soil association map was prepared for lithographing by the Cartographic Section of the Soil Research Institute, Canada Department of Agriculture, Ottawa.

TABLE OF CONTENTS

	Page
Basis of the Soil Association	5
 Definitions of the Terms Used in the Map Legend	
Soil Texture.....	5
Topography.....	6
Drainage.....	6
Surface Reaction.....	7
Stoniness of Surface Soil.....	7
 The Classification of Ontario Soils	
The Soil Families and their Soil Series Members.....	10
The Key to the Soil Series of Ontario.....	13

SOIL ASSOCIATIONS OF SOUTHERN ONTARIO

Soil surveys have been completed for nearly all of the Counties and Districts in Southern Ontario. Although the degree of detail of the surveys varies somewhat, there is now sufficient information to permit the compilation of a generalized soil association map of Southern Ontario. The soil association map is drawn on a smaller scale (10 miles = 1 inch) than the county soil maps (1 mile = 1 inch); hence the information is less precise and detailed than on the larger scale maps. The soil association map does, however, give a broad picture of the soil resources of Southern Ontario.

Basis of the Soil Association

The soil associations (i.e. the map units that are indicated on the map by numbers) consist of groups (families) of soils that occur together in the field and thus form a significant landscape. For example, the map area bearing symbol 31 (see map legend) contains well-drained rolling loam (Guelph family of soils) and well-drained undulating sandy loam (Fox family of soils) as the major areas with lesser amounts of other soils having different texture and/or drainage. On the other hand, map area 40 contains imperfectly-drained undulating loam (London family of soils) and well-drained moderately rolling loam (Guelph family of soils) as the major associates with lesser amounts of other soils. Thus each soil association is a unique combination of soils. The characteristics of the soils themselves and of the associations in which they occur are pertinent to an understanding of the soil resources. There are 73 soil associations shown on the map. These are designated by numbers and delineated by black boundary lines (not by color).

Soil Texture

The texture of the soils is emphasized on the map by colors which indicate areas where most of the soils (surface and subsoil) are of a similar texture and/or of similar depth to bedrock. There are ten different colors, i.e. ten textural groupings shown on the map.

Soil texture is emphasized in this way because it has far-reaching agronomic implications. Coarse-textured (sandy) soils have a relatively low capability to supply plant nutrients and a relatively low moisture-holding capacity compared with fine-textured (clay) soils. Soils that are shallow over bedrock lack adequate moisture reserves because of insufficient depth. On the other hand, coarse-textured soils are more easily cultivated than clay soils. Furthermore, the suitability of the soils for certain crops depends on the soil texture, e.g. coarse-textured soils for tobacco. Thus a knowledge of soil texture assists in deducing the fertility status, irrigation requirements, and general adaptability of the area for crop production. Although in each map area having the same color most of the soils have similar texture, there may also be soils included which represent the complete range in texture from sand to clay. For more specific information, see the county soil map for the area.

Topography

The lay-of-the-land is described in four topographic classes (see map legend.)

- (1) Level to depressional.
- (2) Undulating — smooth, wavy surface with slopes varying up to five per cent.
- (3) Rolling—slopes varying from six per cent (gently rolling) up to 30 per cent (rolling).
- (4) Hilly—slopes of more than 30 per cent.

The topography is of significance in evaluating the suitability of the land for cultivation and in estimating the susceptibility of the land to erosion.

Drainage

The natural drainage of the soil is an important factor in determining the capability and versatility of the land for crop production. Soils that are permeable and in which the water-table is normally more than five feet below the surface are suitable for a wide variety of crops. On the other hand, soils that are slowly permeable or in which the water-table is normally at or near the surface are restricted in their usefulness for crop production. In such poorly drained soils, the root zone may be water-logged for extended periods and the plants consequently suffer from lack of aeration in the soil.

The natural drainage of the soil is indicated by the degree of "mottling" i.e. irregular spots of reddish, yellowish, and grayish colors in the subsoil.

- (a) Good drainage—subsoil is uniform reddish brown or pale grayish brown: free of mottling.
- (b) Imperfect drainage—subsoil is pale reddish brown, mottling occurs in the lower part of the subsoil at 2 to 3 feet below the surface.
- (c) Poor drainage—subsoil is gray; intensely mottled with red and yellow throughout the subsoil from immediately below the surface layer downward.
- (d) Very poor drainage—subsoil is gray; little or no mottling but water-table is at or near the surface throughout the year. In areas of very poor drainage the muck soils are formed.

Of the land suitable for agricultural production in Southern Ontario, approximately 30 per cent is imperfectly drained and 30 per cent is poorly drained (estimated from county soil maps). Increased production results from drainage improvement on these lands; the extent of drainage improvement that can be undertaken profitably depends on the nature of the soil, on the kinds of crops to be grown, and the intensity of cropping.

Surface Reaction

The acidity of the surface soil is an indication of the need for lime. In Southern Ontario there are approximately $\frac{3}{4}$ million acres of land that require lime for maximum production, especially of legume crops. Use of lime, however, should be based on the results of soil analysis.

Stoniness of Surface Soil

The presence of stones or boulders on or in the surface layer of soil is of significance in land use because of the physical hindrance to cultivation.

- (1) Slightly stony—stones are not present in sufficient size and number to interfere with cultivation.
- (2) Moderately to very stony—stones present a hazard to cultivation and some stone-picking is necessary.
- (3) Exceedingly stony—stones present in sufficient number and/or size to present a serious hazard to cultivation. Stone removal is possible although it is expensive.
- (4) Excessively stony — stone removal is too expensive; this is non-arable land.

The significance of the stoniness feature is dependent upon other soil characteristics. For example, if a parcel of land is unsuitable for cultivation because of steep topography or thinness over bedrock, stoniness is not as significant as on land that is otherwise highly suited to crop production. About 50 per cent of the area of Southern Ontario is exceedingly to excessively stony; however, a considerable portion of this area is in the Precambrian Shield where the soils are non-arable for other reasons as well.

SUMMARY

	Million Acres
Total land area shown on the Soil Association Map.....	32.5
A. Land area not suitable for agricultural use	
(1) Within the Precambrian Shield.....	14.5
(includes isolated areas of limited agricultural use; mainly bare rock and innumerable small swamps)	
(2) Outside the Precambrian Shield.....	5.0
(main hazards are thinness of soil over bedrock: excessive stoniness; steep slopes)	
B. Land area suitable for agricultural use.....	13.0
Even in the area that is suitable for agriculture, there are hazards to crop production. Some of the principal hazards and the approximate acreage involved are:	
(1) inadequate drainage	9.1
(2) low fertility	5.3
(Note that fertilizers give profitable returns on almost all of the land area but low natural fertility is most critical on 5.3 million acres)	
(3) stoniness	1.2

THE CLASSIFICATION OF ONTARIO SOILS

Soils are classified on the basis of the characteristics of the soil profile, i.e. sequence of natural horizons or layers. The system used is a natural classification which consists of a number of categories, each containing a set of classes. The classification of the soil series into families, soil families into Subgroups and soil subgroups into Great Groups is shown in the following tables. These are presented to give the relationship between soil series and to provide a link between the soil association map, which is concerned with associations of soil families, and the county soil maps and reports which deal with soil series.

The grouping of the soil series into their appropriate soil family is given in Table 1. The families are listed in alphabetical order on the left side of each column in the table. The soil series members are listed for each soil family. The line number refers to the location of each soil series in Table 2.

Table 2 is the key to the soil series of Ontario. The 283 soil series mapped to date in the Province have been grouped in the key on the basis of kind of parent materials, kind of profile and drainage. The kind of profile is denoted by the Great Group and Subgroup (Orthic Grey-Brown Podzolic etc). The series are arranged from well drained to poorly drained in line with the appropriate kind of material. Thus, each horizontal line may include a catena of soils which is a group of soil series developed from similar materials but differing in drainage. Not all catenary members have been recognized and mapped; some catenas consist of only one or two members. An alphabetical index of series names is included with the key.

TABLE I
THE SOIL FAMILIES AND THEIR SOIL SERIES MEMBERS

Soil Family	Soil Series	Line No.*	Soil Family	Soil Series	Line No.*	
Allendale	Allendale	39	Brookston	Morley	89	
	Englehart	40		Moscow	99	
Alliston	Alliston	29		North Gower	102	
	Wayside	30		Osnabruck	91	
Ameliasburg	Ameliasburg	134		Simcoe	96	
	Hillier	135		Toledo	108	
	Kagowong	136		Bucke	Bucke	40
	Little Current	137			Manotick	39
Bainsville	Bainsville	86		Burford	Burford	4
	Marionville	87			Caledon	5
	Bastard	Bastard	138		Colborne	6
Belmeade		Belmeade	140		Fonthill	7
	Milberta	142	Kars		8	
Berriedale	Berriedale	85	Burpee	Burpee	140	
	Berrien	Berrien		36	Cane	82
Edenvale		37	Brethour	84		
Winona		38	Doe	85		
Beverly	Beverly	108	Falardeau	83		
	Binbrook	109	Clyde	Clyde	105	
	Monaghan	107		Colwood	Colwood	71
	Bookton	Bookton	36		Crombie	68
Dundonald		37	Foxboro		67	
Brady	Brady	9	Hinchinbrooke		73	
	Tecumseth	11	Maplewood		69	
	Vineland	10	Osgoode		80	
Brantford	Brantford	108	Petherwick		78	
	King	107	Stockdale		77	
	Smithville	109	Coutts		Coutts	47
Brisbane	Brisbane	4			Wemyss	48
	Bamford	6	Dack	Dack	120	
	Camilla	5		Dumfries	Dumfries	46
Brooke	Brooke	130	Donnybrook		18	
	Brookston	Brookston	89, 92, 107		Pike Lake	17
Chesley		88	Earlton	Earlton	82	
Ferndale		101		Casey	84	
Lindsay		97		Pense	83	
Malton		95	Eastport	Eastport	33	
Brookston	Brookston	89, 92, 107		Bridgman	34	
	Chesley	88	Plainfield	35		
	Ferndale	101	Elderslie	Elderslie	88	
	Lindsay	97		Craigleith	89	
	Malton	95		Kemble	90	
				Morrisburg	91	

* Line number refers to table 2.

Soil Family	Soil Series	Line No.*	Soil Family	Soil Series	Line No.*
Elk Pit	Elk Pit	26	Honeywood	Honeywood	68
	Henwood	28		Ancaster	70
	Raglan	27		Bennington	69
Evanturel	Evanturel	82		Brant	71
	Appleton	81		Leith	72
	Blanche	83		Newburgh	73
	Thwaites	84		Newcastle	74
Farmington	Farmington	130		Norham	78
	Burnbrae	131		Percy	67
	Elmsley	132		Teeswater	75
	Leitrim	133	Whitfield	76	
Fox	Fox	9	Wooler	77	
	Brighton	11	Howland	Howland	63
	Grimsby	10		Huron	Huron
	Oshtemo	9	Cashel		95
Franktown	Franktown	130	Nelson		93
			Schomberg		96
Gerow	Gerow	134, 135	Seely's Bay	98	
Granby	Granby	9, 11, 29, 30	Watpoos	97	
	Flamboro	10	Kenabeek	Kenabeek	19
Grenville	Grenville	49		St. Samuel	20
	Dawson	51		Thorah	23
	Eamer	50	Killeen	Killeen	46
Guelph	Guelph	54		Lincoln	Lincoln
	Bondhead	55	Atherley		125
	Darlington	58	Bearbrook		118
	Eganville	56	Jeddo		121
	Eldorado	57	Mississauga		129
	Harriston	59	Sidney		123
	Tennyson	60	St. Rosalie		127
	Vars	61	Thornloe		120
	Woburn	62	Welland		126
	Gwillimbury	Gwillimbury	1		Lockport
			Brockport	129	
Haileybury	Haileybury	111	London	London	54
	Almonte	116		Balderson	60
	Buzwah	110		Guerin	55
	Campbell	113		Listowel	59
	Gananoque	112		Milliken	62
	Pike	114		Stafford	56
Haldimand	Haldimand	124	Whitby	58	
	Caistor	122	Lyons	Lyons 49, 50, 52 55, 58	
	Chinguacousy	121		62, 63	
	Elmbrook	123		Gilford	1, 4
	Lovering	125		Lily	43, 46
	Niagara	126		Innisville	60
		Parkhill		53, 54, 59	
Himsworth	Himsworth	66	Sutton Bay	51	
Hendrie	Hendrie	25	Magnetawan	66	

* Line number refers to table 2.

Soil Family	Soil Series	Line No.*	Soil Family	Soil Series	Line No.*
Matilda	Matilda	49, 50	Rideau	Rideau	119
	Dymond	51		Alberton	117
	Emily	52		Wendover	118
	Wiarton	53	Rubicon	Rubicon	20
McCool	McCool	120		L'Achigan	21
	Minesing	104		Mallard	19
Moose	Blackwell	103	Sargent	Sargent	1
	Moose	47		Cramahe	2
Mountain	Christy	48	Saugeen	Saugeen	88
	Mountain	39		Dunedin	89
	Dalton	41		Vincent	90
Otterskin	40	Wolford		91	
New Liskeard	New Liskeard	111	Shashawandah	Shashawandah	139
		112			
		114	South Bay	South Bay	123
		110		Medonte	125
		113		Oneida	121
Nipissing	Nipissing	85	St. Peter	St. Peter	24
	Castor	86		Wyevale	25
Osprey	Osprey	43	Sullivan	Sullivan	3
	Dummer	44		Tioga	Tioga
	Deloro	45	Bolingbroke		30
Otonabee	Otonabee	52	Westmeath		31
	Harkaway	53	White Lake		32
Perth	Perth	92	Trafalgar	Trafalgar	128
	Battersea	98		Cooksville	129
	Carp	102	Tuscola	Tuscola	71
	Ellwood	106		Codrington	78
	Lanark	94		Embros	68
	Peel	95		Lambton	79
	Smithfield	96		Matson	77
	Solmesville	97		Murray	
	Tansley	93		Piccadilly	73
	Thames	100		Tavistock	69
	Pontypool	Pontypool		12	Trent
Harrow		13		Tweed	Tweed
Havelock		14			
Hillsburgh		15	Vasey	Vasey	63
Waterloo		16		Burnstown	64
Powassan	66	Galesburg		65	
Renfrew	Renfrew	115	Wabi	Wabi	47
	Bass	114		Monteagle	48
	Gordon	113	Wendigo	Wendigo	19
	Lansdowne	112		Bancroft	22
	Leech	110		St. Thomas	21
	Hanbury	111		Uplands	20
Snedden	116				

* Line number refers to table 2.

TABLE 2
KEY TO THE SOIL SERIES OF ONTARIO

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
A. Coarse Textured Soils on Sands and Gravels				
Brown Forest and Humic Gleysol Great Groups	Subgroup	Orthic Brown Forest	Gleyed Orthic Brown Forest	Orthic Humic Gleysol
(a) Outwash gravel, limestone dominant.....	1	Sargent	Gwillimbury	Gilford
(b) Eskeroid gravel, limestone dominant.....	2	Cramahe		
(c) Outwash sand, limestone dominant.....	3	Sullivan		
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey-Brown Podzolic	Gleyed Brunisolic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Outwash gravel, limestone and sandstone.....	4	Burford	Brisbane	Gilford
(b) Sand over gravel, shale and limestone.....	5	Caledon	Camilla	
(c) Sand over gravel, limestone.....	6	Colborne	Bamford	
(d) Outwash gravel, red shale.....	7	Fonthill		
(e) Outwash gravel, limestone.....	8	Kars		
(f) Outwash sand, limestone.....	9	Oshtemo, Fox	Brady	Granby
(g) Outwash sand, shale and limestone.....	10	Grimsby	Vineland	Flamboro
(h) Outwash sand, high lime.....	11	Brighton	Tecumseth	Granby
(i) Morainic outwash sand, high lime.....	12	Pontypool		
(j) Morainic outwash sand, shale and limestone.....	13	Harrow		
(k) Morainic outwash sand, low lime.....	14	Havelock		
(l) Morainic outwash fine sand, limestone.....	15	Hillsburgh		
(m) Morainic outwash sand, limestone.....	16	Waterloo		
(o) Morainic outwash gravel, limestone.....	17	Pike Lake		
(p) Outwash gravel, eskeroid.....	18	Donnybrook		
Podzol and Gleysol Great Groups	Subgroup	Orthic Podzol	Gleyed Orthic Podzol	Orthic Gleysol
(a) Outwash sand, mainly granitic.....	19	Wendigo	Mallard	Kenabeek
(b) Outwash sand, low lime.....	20	Uplands	Rubicon	St. Samuel
(c) Outwash fine sand, acidic.....	21	St. Thomas	L'Achigan	
(d) Outwash sand, morainic, acidic.....	22	Bancroft		
(e) Outwash coarse sand, acidic.....	23			Thorah
(f) Outwash gravel, mainly granitic.....	24	St. Peter		
(g) Outwash gravel, low lime.....	25	Wyevale	Hendrie	
(h) Morainic outwash gravel, granitic.....	26	Elk Pit		
(i) Morainic outwash gravel, acidic.....	27	Raglan		
(j) Morainic outwash sand, granitic.....	28	Henwood		
Podzol and Humic Gleysol Great Groups	Subgroup	Bisequa Podzol	Gleyed Bisequa Podzol	Orthic Humic Gleysol
(a) Outwash sand, limestone.....	29	Tioga	Alliston	Granby
(b) Outwash sand, calcite.....	30	Bolingbroke	Wayside	Granby
(c) Morainic outwash sand, low lime.....	31	Westmeath		
(d) Morainic outwash sand and gravel.....	32	White Lake		
Regosol Great Group	Subgroup	Orthic Regosol		
(a) Outwash sand, no profile development.....	33	Eastport		
(b) Outwash sand, Ae, C profile.....	34	Bridgman		
	Subgroup	Mull Regosol		
(c) Outwash sand, Ah, Ae, C profile.....	35	Plainfield		

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
B. Coarse Textured Soils on Clays and Loams				
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey- Brown Podzolic	Gleyed Brunisolic Grey- Brown Podzolic	Orthic Humic Gleysol
(a) Outwash sand, moderately deep over clay.....	36	Bookton	Berrien	Wauseon
(b) Outwash sand, moderately deep loam till.....	37	Dundonald	Edenvale	Mill
(c) Outwash sand, moderately brown clay till.....	38		Winona	
Podzol and Humic Gleysol Great Groups	Subgroup	Orthic Podzol	Gleyed Orthic Podzol	Orthic Humic Gleysol
(a) Outwash sand, moderately deep over clay.....	39	Manotick	Mountain	Allendale
(b) Outwash sand, moderately deep over clay.....	40	Bucke	Otterskin	Englehart
(c) Outwash sand, moderately low lime clay.....	41		Dalton	
C. Medium and Coarse Textured Soils on Stony Till				
Brown Forest and Humic Gleysol Great Groups	Subgroup	Orthic Brown Forest Tweed		
(a) Sandy loam till, mainly calcite.....	42			
	Subgroup	Degraded Brown Forest		Orthic Humic Gleysol
(b) Loam and sandy loam till, mainly dolomite.....	43	Osprey		Lily
(c) Loam till, mainly limestone (Black River).....	44	Dummer		
(d) Loam till, mainly shale (Pamela).....	45	Deloro		
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey- Brown Podzolic	Gleyed Brunisolic Grey- Brown Podzolic	Orthic Humic Gleysol
(a) Loam and sandy loam till, mainly dolomite.....	46	Dumfries	Killean	Lily
Podzol and Gleysol Great Groups	Subgroup	Orthic Podzol	Gleyed Orthic Podzol	Orthic Gleysol
(a) Sandy loam till, mainly granitic.....	47	Wabi	Coutts	Moose
(b) Sandy loam till, mainly granitic.....	48	Monteagle	Wemyss	Christy
D. Medium Textured Soils on Till				
Brown Forest and Humic Gleysol Great Groups	Subgroup	Orthic Brown Forest	Gleyed Orthic Brown Forest	Orthic Humic Gleysol
(a) Loam till, mainly limestone (Beekmantown).....	49	Grenville	Matilda	Lyons
(b) Loam till, mainly limestone (Trenton).....	50	Eamer	Matilda	Lyons
(c) Loam till, mainly dolomite.....	51	Dawson	Dymond	Sutton Bay
	Subgroup	Degraded Brown Forest	Gleyed Degraded Brown Forest	Orthic Humic Gleysol
(d) Loam till, mainly limestone (Trenton)	52	Otonabee	Emily	Lyons
(e) Loam till, mainly limestone (Bertie-Akron)	53	Harkaway	Wiarion	Parkhill

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey-Brown Podzolic	Gleyed Brunisolic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Loam till, mainly dolomite	54	Guelph	London	Parkhill
(b) Loam and sandy loam till, mainly limestone (Trenton)	55	Bondhead	Guerin	Lyons
(c) Loam till, mainly limestone	56	Eganville	Stafford	
(d) Loam till, mainly red and grey shale (Pamelia)	57	Eldorado		
(e) Loam till, mainly limestone and Utica shale	58	Darlington	Whitby	Lyons
(f) Loam till, mainly limestone (Bertie-Akron)	59	Harriston	Listowel	Parkhill
(g) Sandy loam till, mainly limestone and sandstone	60	Tennyson	Balderson	Innisville
(h) Loam till, mainly shale	61	Vars		
(i) Loam till, mainly sandstone and limestone	62	Woburn	Milliken	Lyons
Brunisolic Grey-Brown Podzolic Soils, weak clay concentration in subsoil and their Gley Associates				
(j) Sandy loam till, mainly limestone	63	Vasey	Howland	Lyons
(k) Loam till, mainly limestone	64	Burnstown		
(l) Loam till, mainly limestone	65	Galesburg		
E. Moderately Fine Textured Soils on Fine Sands or Silts				
Acid Brown Wooded and Gleysol Great Groups	Subgroup	Orthic Acid Brown Wooded	Gleyed Orthic Acid Brown Wooded	Orthic Gleysol
(a) Silt loam, moderately deep over clay	66	Magnetawan	Himsworth	Powassan
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey-Brown Podzolic	Gleyed Brunisolic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Deep, calcareous fine sand	67	Percy	Trent	Foxboro
(b) Silt loam, moderately deep over loam till	68	Honeywood	Embro	Crombie
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey- Brown Podzolic	Gleyed Brunisolic Grey-Brown Podzolic	Orthic Humic Gleysol
(c) Silt loam, moderately deep over clay loam till	69	Bennington	Tavistock	Maplewood
(d) Deep silt loam and fine sand	70	Ancaster		
(e) Deep fine sand and silt loam	71	Brant	Tuscola	Colwood
(f) Deep silt loam	72	Leith		
(g) Deep very fine sand and silt loam	73	Newburgh	Piccadilly	Hinchin- brooke
(h) Deep, high lime silt loam	74	Newcastle	Matson	
(i) Silt loam, moderately deep over gravel	75	Teeswater		
(j) Silt loam, moderately deep over limestone	76	Whitfield		
(k) Silt loam, and fine sand, low lime, deep	77	Wooler	Murray	Stockdale
(l) Silt loam, low lime, deep	78	Norham	Codrington	Petherick
(m) Silt loam, moderately deep over clay	79		Lambton	
(n) Silt loam, medium lime	80			Osgoode

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
Grey Wooded and Gleysol Great Groups	Subgroup	Bisequa Grey Wooded	Gleyed Bisequa Grey Wooded	Orthic Gleysol
(a) Silt loam and fine sand, low lime, deep.....	81	Appleton		
(b) Silt loam, calcareous, deep.....	82	Evanturel	Earlton	Cane
(c) Silt loam, low lime, deep.....	83	Blanche	Pense	Falardeau
(d) Silt loam, moderately deep over clay	84	Thwaites	Casey	Brethour
Podzol and Gleysol Great Groups	Subgroup	Orthic Podzol	Gleyed Orthic Podzol	Orthic
(a) Fine sand and silt, acidic, deep.....	85	Berriedale	Nipissing	Doe
	Subgroup			Orthic Humic Gleysol
(b) Fine sand, moderately deep over clay	86		Castor	Bainsville
(c) Fine sand, thin over low lime clay....	87			Marionville
F. Fine Textured Soils on Till or Lacustrine Materials				
Brown Forest and Humic Gleysol Great Groups	Subgroup	Degraded Brown Forest	Gleyed Degraded Brown Forest	Orthic Humic Gleysol
(a) Lacustrine silty clay.....	88	Saugeen	Elderslie	Chesley
(b) Clay till, mainly dark red shale.....	89	Dunedin	Craigleith	Morley
(c) Clay loam till, mainly limestone.....	90	Vincent	Kemble	Brookston
(d) Clay loam till mainly sandstone and shale.....	91	Wolford	Morrisburg	Osnabruck
Grey-Brown Podzolic Gleysol and Humic Gleysol Great Groups	Subgroup	Orthic Grey- Brown Podzolic	Gleyed Orthic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Clay and clay loam till, mainly limestone.....	92	Huron	Perth	Brookston
(b) Clay till, mainly red shale.....	93	Nelson	Tansley	
(c) Clay till, mainly limestone and sandstone.....	94		Lanark	
(d) Lacustrine clay, moderately deep over clay till.....	95	Cashel	Peel	Malton
(e) Silt loam and clay, high lime.....	96	Schomberg	Smithfield	Simcoe
(f) Lacustrine clay loam, thin over clay loam till.....	97	Waupoos	Solmesville	Lindsay
(g) Lacustrine silt and silty clay loam.....	98	Seely's Bay	Battersea	Moscow
(h) Lacustrine silty clay.....	99		Thames	
(i) Lacustrine clay loam.....	100			
(j) Lacustrine clay, low lime.....	101			Ferndale
(k) Lacustrine clay loam or clay.....	102		Carp	North Gower
	Subgroup			Carbonated Rego Gleysol
(l) Lacustrine silt and clay, marly.....	103			Blackwell
(m) Lacustrine silt loam or clay, marly....	104			Minesing
	Subgroup			Rego Humic Gleysol
(n) Lacustrine clay loam or clay.....	105			Clyde
(o) Clay loam till, mainly shale.....	106		Ellwood	

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Brunisolic Grey- Brown Podzolic	Gleyed Brunisolic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Clay loam till, mainly shale (Dundas)	107	King	Monaghan	Brookston
(b) Lacustrine silty clay	108	Brantford	Beverly	Toledo
(c) Lacustrine silt loam, thin over clay	109	Smithville	Binbrook	
Grey Wooded and Humic Gleysol Great Groups	Subgroup	Orthic Grey- Wooded	Gleyed Orthic Grey-Wooded	Orthic Humic Gleysol
(a) Clay loam till, mainly limestone	110	Buzwah	Leech	Phipps
(b) Lacustrine silty clay loam and clay	111	Haileybury	Hanbury	New Liskeard
(c) Lacustrine clay and silt loam	112	Gananoque	Lansdowne	Napanee
(d) Lacustrine silty clay	113	Campbell	Gordon	Wolsey
(e) Lacustrine clay	114	Pike	Bass	Perch
(f) Lacustrine silt loam and clay	115		Renfrew	
(g) Lacustrine silty clay loam, low lime	116	Almonte	Snedden	
Regosols and Humic Gleysol Great Groups	Subgroup		Gleyed Mull Regosol	Orthic Humic Gleysol
(a) Lacustrine silt loam, moderately deep over clay	117		Alberton	
(b) Lacustrine clay, brown, low lime	118		Wendover	Bearbrook
(c) Lacustrine clay, grey, low lime	119		Rideau	
G. Very Fine Textured Soils on Till or Lacustrine Materials				
Brown Wooded and Humic Gleysol Great Groups	Subgroup	Orthic Brown Wooded	Gleyed Orthic Brown Wooded	Orthic Humic Gleysol
(a) Lacustrine clay	120	Dack	McCool	Thornloe
Grey-Brown Podzolic and Humic Gleysol Great Groups	Subgroup	Orthic Grey- Brown Podzolic	Gleyed Orthic Grey-Brown Podzolic	Orthic Humic Gleysol
(a) Clay till, mainly brown shale (Lorraine)	121	Oneida	Chinguacousy	Jeddo
(b) Clay till, mainly grey shale (Kettle Point)	122		Caistor	
(c) Lacustrine clay, medium lime	123	South Bay	Elmbrook	Sidney
(d) Lacustrine clay, dark grey	124		Haldimand	Lincoln
(e) Lacustrine clay, low lime	125	Medonte	Lovering	Atherley
(f) Lacustrine clay, red	126		Niagara	Welland
(g) Lacustrine clay, low lime	127			St. Rosalie
(h) Red clay, moderately deep over red shale	128	Lockport	Trafalgar	
(i) Grey clay till, moderately deep over grey shale	129	Brockport	Cooksville	Mississauga
H. Shallow Soils on Sedimentary Rock				
Brown Forest and Humic Gleysol Great Groups	Subgroup	Orthic Brown Forest	Gleyed Orthic Brown Forest	Orthic Humic Gleysol
(i) Medium textured soils				
(a) Loam till, shallow over limestone or sandstone	130	Farmington	Franktown	Brooke
(b) Loam till, shallow over limestone (Trenton)	131	Burnbrae		
(c) Sandy loam till, shallow over sandstone	132	Elmsley		
(d) Gravelly outwash, shallow over shale	133	Leitrim		

Parent Material of Soil Catena and Great Groups	Line	Soil Drainage Class		
		Good	Imperfect	Poor
(ii) Fine textured soils				
(a) Clay loam till, shallow over limestone (Trenton).....	134	Ameliasburg		Gerow
(b) Clay till, shallow over limestone and shale.....	135	Hillier		Gerow
(c) Lacustrine silt loam, shallow over limestone.....	136	Kagawong		
(d) Lacustrine clay, shallow over shale	137	Little Current		
Podzol Great Group	Subgroup	Orthic Podzol		
(a) Outwash sand, shallow over sandstone.....	138	Bastard		
Regosol Great Group	Subgroup	Mull Regosol		
(b) Gravelly loam, shallow over shale.....	139	Shasha- wandah		
I. Very Poorly Drained Soils				
Peaty Rego Gleysols with 6 to 12 inches of Organic Material	Subgroup			
(a) Muck, thin over sandy materials..... Associated with the soils in line 19.....	140	Burpee		
(b) Muck, thin over clay. Associated with the soils in line 102.....	141	Belmeade		
(c) Muck, thin over clay. Associated with the soils in line 111.....	142	Milberta		
Organic Soils, with more than 12 inches of Organic Material				
(a) Well decomposed, black materials.....	143	Muck		
(b) Slightly decomposed, brown materials.....	144	Peat		

Note: Humic Gleysol called Dark Grey Gleisolic on soil map.

INDEX OF SERIES NAMES IN KEY.

Series Name	Line No. *	Series Name	Line No. *
Alberton	117	Caistor	122
Allendale	39	Camilla	5
Alliston	29	Campbell	113
Almonte	116	Cane	82
Ameliasburg	134	Carp	102
Ancaster	70	Casey	84
Appleton	81	Cashel	95
Atherley	125	Castor	86
Bainsville	86	Chesley	88
Balderson	60	Chinguacousy	121
Bamford	6	Christy	48
Bancroft	22	Clyde	105
Bass	114	Colborne	6
Bastard	138	Colwood	71
Battersea	98	Codrington	78
Bearbrook	118	Cooksville	129
Belmeade	102	Coutts	47
Bennington	69	Craigleith	89
Berrien	36	Cramahe	2
Berriedale	85	Crombie	68
Beverly	108	Dack	120
Binbrook	109	Dalton	41
Blackwell	103	Darlington	58
Blanche	83	Dawson	51
Bolingbroke	30	Deloro	45
Bondhead	55	Doe	85
Bookton	36	Donnybrook	18
Brady	9	Dumfries	46
Brant	71	Dummer	44
Brantford	108	Dundonald	37
Brethour	84	Dunedin	89
Bridgman	34	Dymond	51
Brighton	11	Eamer	50
Brisbane	4	Earlton	82
Brockport	129	Eastport	33
Brooke	130	Edenvale	37
Brookston	89, 92, 107	Eganville	56
Bucke	40	Elderslie	88
Burford	4	Eldorado	57
Burnbrae	131	Elk Pit	26
Burnstown	64	Ellwood	106
Burpee	19	Elmbrook	123
Buzwah	110	Elmsley	132
Caledon	5	Embro	68

* Line number refers to table 2.

INDEX OF SERIES NAMES IN KEY

Series Name	Line No. *	Series Name	Line No. *
Emily	52	Killean	46
Englehart	40	King	107
Evanturel	82	L'Achigan	21
Falardeau	83	Lambton	79
Farmington	130	Lanark	94
Ferndale	101	Lansdowne	112
Flamboro	10	Leech	110
Fonthill	7	Leitrim	133
Fox	9	Leith	72
Foxboro	67	Lily	43, 46
Franktown	130	Lincoln	124
Galesburg	65	Lindsay	97
Gananoque	112	Listowel	59
Gerow	134, 135	Little Current	137
Gilford	1, 4	Lockport	128
Gordon	113	London	54
Granby	9, 11, 29, 30	Lovering	125
Grenville	49	Lyons	49, 50, 52, 55, 58, 62, 63
Grimsby	10	Magnetawan	66
Guelph	54	Mallard	19
Guerin	55	Malton	95
Gwillimbury	1	Manotick	39
Haileybury	111	Maplewood	69
Haldimand	124	Marionville	87
Hanbury	111	Matilda	49, 50
Harkaway	53	Matson	74
Harriston	59	Medonte	125
Harrow	13	McCool	120
Havelock	14	Milberta	111
Hendrie	25	Mill	37
Henwood	28	Milliken	62
Hillier	135	Minesing	104
Hillsburgh	15	Mississauga	129
Himsworth	66	Monaghan	107
Hinchinbrooke	73	Monteagle	48
Honeywood	68	Moose	47
Howland	63	Morley	89
Huron	92	Morrisburg	91
Innisville	60	Moscow	99
Jeddo	121	Mountain	39
Kagawong	136	Murray	77
Kars	8	Napanee	112
Kemble	90	Newburgh	73
Kenabeck	19	Newcastle	74

* Line number refers to table 2.

INDEX OF SERIES NAMES IN KEY

Series Name	Line No. *	Series Name	Line No. *
Nelson	93	St. Rosalie	127
New Liskeard	111	St. Samuel	20
Niagara	126	St. Thomas	21
Nipissing	85	Sullivan	3
Norham	78	Sutton Bay	51
North Gower	102	Tansley	93
Oneida	121	Tavistock	69
Osgoode	80	Tecumseth	11
Oshtemo	9	Teeswater	75
Osnabruck	91	Tennyson	60
Osprey	43	Thames	100
Otonabee	52	Thorah	23
Otterskin	40	Thornloe	120
Parkhill	53, 54, 59	Thwaites	84
Peel	95	Tioga	29
Pense	83	Toledo	108
Perch	114	Trafalgar	128
Percy	67	Trent	67
Perth	92	Tuscola	71
Petherwick	78	Tweed	42
Phipps	110	Uplands	20
Piccadilly	73	Vars	61
Pike	114	Vasey	63
Pike Lake	17	Vincent	90
Plainfield	35	Vineland	10
Pontypool	12	Wabi	47
Powassan	66	Waterloo	16
Raglan	27	Waupoos	97
Renfrew	115	Wauseon	36
Rideau	119	Wayside	30
Rubicon	20	Welland	126
Sargent	1	Wemyss	48
Saugeen	88	Wendigo	19
Schomberg	96	Wendover	118
Seely's Bay	98	Westmeath	31
Sidney	123	Whitby	58
Shashawandah	139	White Lake	32
Simcoe	96	Whitfield	76
Smithfield	96	Wiarion	53
Smithville	109	Winona	38
Snedden	116	Woburn	62
Solmesville	97	Wolford	91
South Bay	123	Wolsey	113
Stafford	56	Wooler	77
Stockdale	77	Wyevale	25
St. Peter	24		

* Line number refers to table 2.