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G.B.H.

**CLASSIFICATION AND CORRELATION
OF
THE SOILS OF**

**ORANGE COUNTY ✓
INDIANA**

NOVEMBER 1980



**U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MIDWEST TECHNICAL SERVICE CENTER
LINCOLN, NEBRASKA**

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Midwest Technical Service Center
Lincoln, Nebraska 68501

Classification and Correlation
of the Soils of
Orange County, Indiana

A correlation conference was held in the MTSC the week of August 11, 1980. Participating in this conference were Robert C. Wingard, Jr., party leader; David G. Van Houten, soil scientist (field specialist); and Louie L. Buller, soil correlator. Material available and used in making this correlation was the field correlation, draft of the manuscript, correlation samples, laboratory data, and the field sheets. Louie L. Buller participated in the comprehensive field review the week of September 10-14, 1979.

Map symbols consist of a combination of letters or of letters and numbers. The first capital letter is the initial one of the map unit name. The lower-case letter that follows separates map units having names that begin with the same letter, except it does not separate sloping or eroded phases. The second capital letter indicates the class of slope. Symbols without a slope letter are for nearly level soils or miscellaneous areas. A final number of two indicates that the soil is eroded and three that it is severely eroded.

Stick to your check ○

<u>Field Symbols</u>	<u>Field Map Unit Name</u>	<u>Publication Symbol</u>	<u>Approved Map Unit Name</u>
Ba (BaA, BaB)	Bartle silt loam	Ba	Bartle silt loam
BdA	Bedford silt loam, 0 to 2 percent slopes	BdA	Bedford silt loam, 0 to 2 percent slopes
BdB (BdB2)	Bedford silt loam, 2 to 6 percent slopes	BdB	Bedford silt loam, 2 to 6 percent slopes
O2	Bromer silt loam	Br	Bromer silt loam
Bu	Burnside silt loam, occasionally flooded	Bu	Burnside silt loam, occasionally flooded
CaD3 (CcD3, HcD3)	Caneyville-Crider complex, 12 to 18 percent slopes, severely eroded	CaD3	Caneyville-Crider complex, 12 to 18 percent slopes, severely eroded
CaE (CaF)	Caneyville-Crider silt loams, 18 to 25 percent slopes	CaE	Caneyville-Crider silt loams, 18 to 25 percent slopes
CdF	Caneyville-Rock outcrop complex, 18 to 70 percent slopes	CdF	Caneyville-Rock outcrop complex, 18 to 70 percent slopes
CrB (CrB2, CpB2, CpB, CrA)	Crider silt loam, 2 to 6 percent slopes	CrB	Crider silt loam, 2 to 6 percent slopes
CrC2 (CpC2, CaC2, HaC2, FrC2)	Crider silt loam, 6 to 12 percent slopes, eroded	CrC2	Crider silt loam, 6 to 12 percent slopes, eroded
CrC3 (CpC3, HcC3)	Crider silt loam, 6 to 12 percent slopes, severely eroded	CrC3	Crider silt loam, 6 to 12 percent slopes, severely eroded
CaD2 (HaD2)	Crider-Caneyville silt loams, 12 to 18 percent slopes, eroded	CaD2	Crider-Caneyville silt loams, 12 to 18 percent slopes, eroded
CsC2 (CsC3, CsD2, CtC2, CtC3)	Crider-Frederick complex, karst, 2 to 12 percent slopes, eroded	CsC2	Crider-Frederick- Caneyville silt loams, karst, 2 to 12 percent slopes, eroded
ELA	Elkinsville silt loam, 0 to 2 percent slopes	ELA	Elkinsville silt loam, 0 to 2 percent slopes

*why was
Symbol
change?*

P

<u>Field Symbols</u>	<u>Field Map Unit Name</u>	<u>Publication Symbol</u>	<u>Approved Map Unit Name</u>
ElB (ElB2)	Elkinsville silt loam, 2 to 6 percent slopes)	ElB	Elkinsville silt loam, 2 to 6 percent slopes P
ElC2 (ElC3)	Elkinsville silt loam, 6 to 12 percent slopes, eroded)	ElC2	Elkinsville silt loam, 6 to 12 percent slopes, eroded
FrD2 (FtD3)	Frederick silt loam, 12 to 18 percent slopes, eroded)	FrD2	Frederick silt loam, 12 to 18 percent slopes, eroded
FrF (FrE, FrE2, FtE3)	Frederick silt loam, 18 to 50 percent slopes)	FrF	Frederick silt loam, 18 to 50 percent slopes ✓
GoF (BgF, GlE2, GlE3)	Gilpin-Wellston silt loams, 18 to 50 percent slopes)	GoF	Gilpin-Wellston silt loams, 18 to 50 percent slopes ✓
Hd (Cu, Ge, H/E)	Haymond silt loam, frequently eroded <i>flooded</i>)	Hd	Haymond silt loam, frequently eroded <i>flooded</i> P
Mo (8, 7)	Montgomery silty clay loam)	Mo	Montgomery silty clay loam P
PeB (PeB2, PeA)	Pekin silt loam, 2 to 6 percent slopes)	PeB	Pekin silt loam, 2 to 6 percent slopes P
PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded)	PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded ✓
O1	Peoga silt loam, clayey substratum)	Po	Peoga silt loam, clayey substratum P
Pt (quarry)	Quarry)	Pt	Pits, quarry
Ud (landfill)	Landfill)	Ud	Udorthents, loamy
Wa (Bk, St, Sh)	Wakeland silt loam, frequently flooded)	Wa	Wakeland silt loam, frequently flooded
WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded)	WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded ✓

<u>Field Symbols</u>	<u>Field Map Unit Name</u>	<u>Publication Symbol</u>	<u>Approved Map Unit Name</u>
WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded	WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded
G1D3	Wellston-Gilpin complex, 12 to 18 percent slopes, severely eroded	WfD3	Wellston-Ebal-Gilpin complex, 12 to 18 percent slopes, severely eroded
G1D2	Wellston-Gilpin silt loam, 12 to 18 percent slopes, eroded	WgD2	Wellston-Gilpin-Ebal silt loams, 12 to 18 percent slopes, eroded
Wr (Sf, Ee)	Wilbur silt loam, frequently flooded	Wr	Wilbur silt loam, frequently flooded
T1A (JoA, JoB)	Zanesville silt loam, 0 to 2 percent slopes, moderately wet	ZaA	Zanesville silt loam, 0 to 2 percent slopes
T1B (T1B2)	Zanesville silt loam, 2 to 6 percent slopes, moderately wet	ZaB	Zanesville silt loam, 2 to 6 percent slopes
ZaC2	Zanesville silt loam, 6 to 12 percent slopes, eroded	ZaC2	Zanesville silt loam, 6 to 12 percent slopes, eroded
ZaC3	Zanesville silt loam, 6 to 12 percent slopes, severely eroded	ZaC3	Zanesville silt loam, 6 to 12 percent slopes, severely eroded

M, W, D, D
wellston

0-7 A, B
Red 5/18/81 4/200
0-9
2-2 3
6
12-14
14
58
266

Series Established by This Correlation:

Bromer (Orange County, Indiana)

Series Dropped or Made Inactive:

None

Certification Statement:

The state soil scientist has certified that the mapping is complete and that the detailed maps and the general soil map are adequately joined to the surrounding completed surveys. In some instances, the series used in the adjoining survey areas were not used in Orange County, and in these instances, the join was made with a similar soil.

The representative pedons are located in mapped areas of the named soil, and all interpretations are coordinated.

Verification of Exact Cooperator Names:

Outside front cover:

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Purdue University
Agricultural Experiment Station
and
Indiana Department of Natural Resources
Soil and Water Conservation Committee

Inside Front Cover:

This survey was made cooperatively by the Soil Conservation Service, Purdue University Agricultural Experiment Station, Indiana Department of Natural Resources, and the Soil and Water Conservation Committee. It is part of the technical assistance furnished to the Orange County Soil and Water Conservation district. Financial assistance was made available by the board of county commissioners of Orange County.

Disposition of Field Sheets:

The original field sheets are retained by the state and will be used in the map compilation and finishing procedure.

Prior Soil Survey Publications:

None

Instructions for Map Compilation and Map Finishing:

The symbols on the following conventional and special symbols legend are those that will be used in map finishing.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

Soil Survey Area: Orange County
State: Indiana

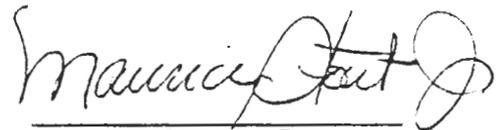
4/76 RCW:DMW
Rev. 5/76 RCW:DMW
Rev. 4/77 RCW:DMW
Rev. 4/73 RCW:DMW
Rev. 9/79 RCW:DMW
6/80 RCW:DVH

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
CULTURAL FEATURES		CULTURAL FEATURES (cont.)		SPECIAL SYMBOLS FOR SOIL SURVEY	
BOUNDARIES		MISCELLANEOUS CULTURAL FEATURES		SOIL DELINEATIONS AND SOIL SYMBOLS	
County or parish		Farmstead, house (only in urban areas)		ESCARPMENTS	
Minor civil division		Church		Bedrock (points down slope)	
Reservation (national forest or park, state forest or park, and large airport)		School		SHORT STEEP SLOPE	
Field street matchlines & realines				GULLY	
AD HOC BOUNDARY (lease)				MISCELLANEOUS	
Small airport, airfield, park, golf field, cemetery, or flood plain				Rock outcrop (includes sandstone and shale)	
STATE COORDINATE TICK (250,000 FEET)		WATER FEATURES		Sandy soil	
LAND DIVISION CORNERS (sections and land grants)		DRAINAGE		Severely eroded spot	
ROADS		Perennial, double line			
County, town or ranch		Perennial, single line			
		Intermittent			
		Drainage end			
ROAD EMBLEMS & DESIGNATIONS		LAKES, PONDS AND RESERVOIRS			
Federal		Perennial			
State		MISCELLANEOUS WATER FEATURES			
		Marsh or swamp			
RAILROAD		Wet spot			
DAMS					
Large (to scale)					
Medium or small					
PITS					
Mine or quarry					

PRIME FARMLAND MAP UNITS

<u>Publication Symbol</u>	<u>Approved Mapping Unit Name</u>
Ba	Bartle silt loam (where drained)
BdA	Bedford silt loam, 0 to 2 percent slopes
BdB	Bedford silt loam, 2 to 6 percent slopes
Br	Bromer silt loam (where drained)
Bu	Burnside silt loam, occasionally flooded (where adequately protected from flooding)
CrB	Crider silt loam, 2 to 6 percent slopes
ElA	Elkinsville silt loam, 0 to 2 percent slopes
ElB	Elkinsville silt loam, 2 to 6 percent slopes
Mo	Montgomery silty clay loam (where drained)
PeB	Pekin silt loam, 2 to 6 percent slopes (where drained)
Po	Peoga silt loam, clay substratum (where drained)
ZaA	Zanesville silt loam, 0 to 2 percent slopes
ZaB	Zanesville silt loam, 2 to 6 percent slopes

Approved: November 24, 1980



Maurice Stout, Jr.
Head, Soils Staff
Midwest TSC

CONVERSION LEGEND RELATING FIELD MAP
SYMBOLS TO PUBLICATION SYMBOLS

<u>Field Symbols</u>	<u>Publication Symbols</u>	<u>Field Symbols</u>	<u>Publication Symbols</u>	<u>Field Symbols</u>	<u>Publication Symbols</u>
Ba	Ba	E1C2	E1C2	ToA	ZaA
BaA	Ba	E1C3	E1C2	Ud	Ud
BaB	Ba	FrC2	CrC2	Wa	Wa
BdA	BdA	FrD2	FrD2	WeC2	WeC2
BdB	BdB	FrE	FrF	WeC3	WeC3
BdB2	BdB	FrE2	FrF	Wr	Wr
BgF	GoF	FrF	FrF	ZaC2	ZaC2
Bk	Wa	FtD3	FrD2	ZaC3	ZaC3
Bu	Bu	FtE3	FrF	01	Po
CaC2	CrC2	Ge	Hd	02	Br
CaD2	CuD2	G1D2	WgD2	7	Mo
CaD3	CaD3	G1D3	WfD3	8	Mo
CaE	CaE	G1E2	GoF	LANDFILL	Ud
CaF	CaE	G1E3	GoF	QUARRY	Pt
CcD3	CaD3	GoF	GoF		
CdF	CdF	HaC2	CrC2		
CrA	CrB	HaD2	CuD2		
CrB	CrB	HcC3	CrC3		
CrB2	CrB	HcD3	CaD3		
CrC2	CrC2	Hd	Hd		
CrC3	CrC3	H/E	Hd		
CpB	CrB	JoA	ZaA		
CpB2	CrB	JoB	ZoA		
CpC2	CrC2	Mo	Mo		
CpC3	CrC3	PeA	PeB		
CsC2	CxC2	PeB	PeB		
CsC3	CxC2	PeB2	PeB		
CsD2	CxC2	PeC2	PeC2		
CtC2	CxC2	Pt	Pt		
CtC3	CxC2	Sf	Wr		
Cu	Hd	Sh	Wa		
Ee	Wr	St	Wa		
E1A	E1A	T1A	ZaA		
E1B	E1B	T1B	ZaB		
E1B2	E1B	T1B2	ZaB		

CLASSIFICATION OF PEDONS SAMPLED FOR LABORATORY ANALYSIS

Classification of typical pedons sampled for laboratory analysis by the National Soil Survey Laboratory or Purdue University.

<u>Sampled As</u>	<u>Sample No.</u>	<u>Publication Map Symbol</u>	<u>Approved Classification</u>
Bartle	S77IN117-4-(1-7)	Ba	Bartle taxadjunct
Bedford	S78IN117-017	BdB	Bedford
Bromer	S78IN117-016	Br	Bromer
Burnside	S77IN117-5-(1-4)	Bu	Burnside
Caneyville	S79IN117-3-(1-9)	CuD2	Caneyville
Haymond	S77IN117-7-(1-4)	Hd	Haymond
Montgomery	S78IN117-19-(1-7)	Mo	Montgomery taxadjunct
Pekin	S77IN117-8-(1-5)	PeC2	Pekin taxadjunct
Unknown (Leipsic)	S78IN117-015	Po	Peoga
Wellston	S78IN117-011	WgD2	Wellston
Wilbur	S77IN117-6-(1-6)	Wr	Wilbur
Tilsit	S78IN117-010	ZaB	Zanesville
Zanesville	S76IN117-6-(1-7)	ZaC3	Zanesville

Record of additional laboratory data as received from Indiana. Analysis by the National Soil Survey Laboratory or Purdue University.

<u>Sampled As</u>	<u>Sample No.</u>	<u>Publication Map Symbol</u>	<u>Publication Name</u>
Bedford	S77IN117-10-(1-6)	BdA	Bedford
Bromer	S78IN117-3-(1-6)	Br	Bromer
Caneyville	S79IN117-2-(1-6)	CaD3	Caneyville
Crider	S78IN117-12-(1-8)	CrC2	Crider
Crider	S78IN117-13-(1-6)	CrC2	Crider
Hagerstown	S75IN117-1-(1-5)	CxC2	Frederick (inclusion)
Frederick	S78IN117-18-(1-10)	CxC2	Frederick (inclusion)
Berks	S76IN117-2-(1-4)	GoF	Gilpin (inclusion)
Ebal Variant	S78IN117-1-(1-6)	WfD3	Gilpin (inclusion)
Guthrie Variant	S78IN117-2-(1-7)	Po	Peoga
Tilsit	S76IN117-1-(1-6)	ZaB	Zanesville
Tilsit	S78IN117-14-(1-9)	ZaB	Zanesville
Wellston	S76IN117-4-(1-8)	WeC2	Wellston

Notes To Accompany
Classification and Correlation
of the Soils of
Orange County, Indiana

by
Louie L. Buller

BARTLE SERIES

This series is a taxadjunct. It has lower base saturation and a lower clay content in the argillic horizon than typical for the series. The classification is coarse-silty, mixed, mesic Aeric Fragiaquults.

BEDFORD SERIES

The lab data for the typical pedon attached to this correlation seems to indicate that the base saturation at the critical depth is 35 percent or higher. Indiana took a subsample at the critical depth and the subsample has base saturation below 35 percent. In view of this, the taxadjunct statement in the series description will be removed.

BROMER SERIES

This is a new series established by this correlation. It is formed in strongly or very strongly acid silty loess over less acid residuum from limestone.

GILPIN SERIES

Indiana has lab data on the typical pedon. It appears that during the sample preparation sandstone fragments may have been processed along with the soil material and consequently changed the texture for the B22t horizon to fine sandy loam. According to the party leader, fine sandy loam textures are not typical for the Gilpin series, and this texture was not supported by the correlation sample. In view of this, we are disregarding the lab data for the Gilpin sample S76IN117-3-(1-5).

MONTGOMERY SERIES

This soil is a taxadjunct because it has higher chroma in the B horizon than typical for the series and the clay content in the control section is lower than typical for the series. This soil also has a red clay layer at about 60 inches. This soil classifies as a fine, mixed, mesic Typic Haplaquolls.

PEKIN SERIES

This soil is a taxadjunct because the soil is coarse-silty rather than fine-silty and has base saturation below 35 percent at 30 inches below the top of the fragipan. The classification is coarse-silty, mixed, mesic Aquic Fragiudults.

PEOGA SERIES

These soils are formed in loess over fine textured material. The fine textured material is too deep in the profile to affect the series classification. This material is recognized as a clayey substratum phase.

UDORTHENTS

This is a covered sanitary landfill. The classification is loamy, mixed, mesic Typic Udorthents.

ZANESVILLE SERIES

The Zanesville mapping units on A and B slopes were proposed for final correlation as Tilsit. These soils were mapped adjacent to C slope mapping units of Zanesville. These soils are typically mapped on the Chester geologic formation, which is a series of thinly bedded shales, sandstones, and limestones. The lab data on the typical pedon presented for correlation as Tilsit had 45 percent base saturation or more at the critical depth and classified as a Typic Fragiudalfs. In view of this, the Tilsit soils were included with the Zanesville soils. The soils with less than 35 percent base saturation at 30 inches below the top of the fragipan are inclusions in the mapping units.

CLASSIFICATION OF THE SOILS

<u>Soil Name</u>	<u>Family or Higher Taxonomic Class</u>
*Bartle	Fine-silty, mixed, mesic Aeric Fragiaqualfs
Bedford	Fine-silty, mixed, mesic Typic Fragiudulfs
Bromer	Fine-silty, mixed, mesic Aeric Ochraqualfs
Burnside	Loamy-skeletal, mixed, acid, mesic Typic Udifluvents
Caneyville	Fine, mixed, mesic Typic Hapludalfs
Crider	Fine-silty, mixed, mesic Typic Paleudalfs
Ebal	Fine, mixed, mesic Ultic Hapludalfs
Elkinsville	Fine-silty, mixed, mesic Ultic Hapludalfs
Frederick	Clayey, mixed, mesic Typic Paleudulfs
Gilpin	Fine-loamy, mixed, mesic Typic Hapludulfs
Haymond	Coarse-silty, mixed, nonacid, mesic Typic Udifluvents
*Montgomery	Fine, mixed, mesic Typic Haplaquolls
*Pekin	Fine-silty, mixed, mesic Aquic Fragiudalfs
Peoga	Fine-silty, mixed, mesic Typic Ochraqualfs
Udorthents	Loamy, mixed, mesic Typic Udorthents
Wakeland	Coarse-silty, mixed, nonacid, mesic Aeric Fluvaquents
Wellston	Fine-silty, mixed, mesic Ultic Hapludalfs
Wilbur	Coarse-silty, mixed, nonacid, mesic Aquic Udifluvents
Zanesville	Fine-silty, mixed, mesic Typic Fragiudalfs

*Taxadjunct--See "Notes to Accompany Classification and Correlation of the Soils of Orange County, Indiana," for details.