

**CLASSIFICATION AND CORRELATION  
OF  
THE SOILS OF**

**CARROLL COUNTY  
INDIANA**

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**SEPTEMBER 1987**

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**LOCATION**

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

UNITED STATES DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
Midwest National Technical Center  
Lincoln, Nebraska 68508-3866

Classification and Correlation  
of the Soils of  
Carroll County, Indiana

The field correlation and final field review for the soil survey of Carroll County, Indiana, was held in Delphi, Indiana, in February 1987. Participating in the final field review were Ernie Jensen, soil survey party leader and Bill Hosteter, soil scientist, Indiana State Office. The data reviewed consisted of the first draft of the soil survey manuscript, field sheets, laboratory data, and SCS-SOI-5 forms. Gerald J. Post, soil correlator, MNTC, participated in the comprehensive field review in August 1986.

This correlation was prepared by Gerald J. Post during May and June 1987, in telephone consultation with the state soils staff. Material used to prepare this correlation included the soil survey manuscript, field correlation, field notes, field sheets, laboratory data, and SCS-SS-6's.

Headnote for Detailed Soil Survey Legend:

Map symbols consist of a combination of letters or of letters and a number. The first capital letter is the initial one of the map unit name. The lowercase letter that follows separates map units having names that begin with the same letter, except that 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 2 indicates that the soil is eroded and 3 that it is severely eroded.

2  
SOIL CORRELATION OF  
CARROLL COUNTY, INDIANA

Field symbols	Field map unit name	Publication symbol	Approved map unit name
AsB2	Alvin fine sandy loam, 2 to 8 percent slopes, eroded	AsB2	Alvin fine sandy loam, 2 to 8 percent slopes, eroded
Ar	Armiesburg silty clay loam, occasionally flooded	At	Armiesburg silty clay loam, occasionally flooded
Bd	Beaucoup silty clay loam, rarely flooded	Ba	Beaucoup silty clay loam, rarely flooded
Bb	Beaucoup silt loam, frequently flooded	Bb	Beaucoup silt loam, frequently flooded
CaA	Camden silt loam, 0 to 1 percent slopes	CaA	Camden silt loam, 0 to 1 percent slopes
CaB2	Camden silt loam, 2 to 6 percent slopes, eroded	CaB2	Camden silt loam, 2 to 6 percent slopes, eroded
CeG	Casco-Hennepin loams, 30 to 70 percent slopes	CeG	Casco-Hennepin loams, 30 to 70 percent slopes
Cg	Ceresco fine sandy loam, occasionally flooded	Cg	Ceresco fine sandy loam, occasionally flooded
Cj	Ceresco Variant fine sandy loam, occasionally flooded	Ck	Ceresco Variant fine sandy loam, occasionally flooded
Cn	Cohoctah loam, occasionally flooded	Cn	Cohoctah loam, occasionally flooded
Cp	Cohoctah loam, gravelly substratum, occasionally flooded	Cp	Cohoctah loam, gravelly substratum, occasionally flooded
Cm	Cohoctah Variant very fine sandy loam, frequently flooded	Cr	Cohoctah Variant very fine sandy loam, frequently flooded

## CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
CkB	Coloma loamy sand, 2 to 10 percent slopes	CtB	Coloma loamy sand, 2 to 10 percent slopes
CvA	Crosby silt loam, 0 to 2 percent slopes	CvA	Crosby silt loam, 0 to 2 percent slopes
CwB, CwA	Crosby-Fincastle silt loams, 1 to 3 percent slopes	CwB	Crosby-Fincastle silt loams, 1 to 3 percent slopes
CyB	Crosier-Whitaker till substratum complex, 1 to 3 percent slopes	CyB	Crosier-Whitaker, till substratum, complex, 1 to 3 percent slopes
Cz	Cyclone silt loam	Cz	Cyclone silty clay loam
FcA	Fincastle-Starks silt loams, 0 to 1 percent slopes	FaA	Fincastle-Starks silt loams, 0 to 1 percent slopes
FbB, FbA	Fincastle-Starks silt loams, 1 to 3 percent slopes	FbB	Fincastle-Starks silt loams, 1 to 3 percent slopes
FsA	Fox sandy loam, 0 to 2 percent slopes	FsA	Fox sandy loam, 0 to 2 percent slopes
FsB2	Fox sandy loam, 2 to 6 percent slopes, eroded	FsB2	Fox sandy loam, 2 to 6 percent slopes, eroded
FtC3	Fox gravelly clay loam, 6 to 15 percent severely eroded	FtC3	Fox gravelly clay loam, 6 to 15 percent slopes, severely eroded
HkG	Hennepin loam, 30 to 70 percent slopes	HkG	Hennepin loam, 30 to 70 percent slopes
HnG	Hennepin-Rock outcrop complex, 30 to 90 percent slopes	HnG	Hennepin-Rock outcrop complex, 30 to 90 percent slopes

## CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
Hw, Hx	Houghton muck, drained	Hw	Houghton muck, drained
Jr	Jules silt loam, frequently flooded	Jr	Jules silt loam, frequently flooded
Js	Jules-Stonelick complex, frequently flooded	Js	Jules-Stonelick complex, frequently flooded
KcA	Kalamazoo loam, 0 to 2 percent slopes	KcA	Kalamazoo loam, 0 to 2 percent slopes
KcB2	Kalamazoo loam, 2 to 6 percent slopes, eroded	KcB2	Kalamazoo loam, 2 to 6 percent slopes, eroded
KfA	Kendall silt loam, 0 to 1 percent slopes	KfA	Kendall silt loam, 0 to 1 percent slopes
KgA	Kendall-Fincastle silt loams, 0 to 1 percent slopes	KgA	Kendall-Fincastle silt loams, 0 to 1 percent slopes
Ld	Landes sandy loam, rarely flooded	Ld	Landes fine sandy loam, rarely flooded
Lo	Landes loam, moderately wet, occasionally flooded	Lo	Landes loam, moderately wet, occasionally flooded
Ls, Lc	Landes-Moundhaven complex, occasionally flooded	Ls	Landes-Moundhaven complex, occasionally flooded
Ma	Mahasville silty clay loam, gravelly substratum	Ma	Mahasville silty clay loam, gravelly substratum
Mb	Mahasville silty clay loam, till substratum	Mb	Mahasville silty clay loam, till substratum
Mg	Mahasville-Treaty silt loams	Mc	Mahasville-Treaty silt loams

## CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
MdB2	Martinsville till substratum-Miami loams, 2 to 6 percent slopes, eroded	MdB2	Martinsville, till substratum-Miami loams, 2 to 6 percent slopes, eroded
MfC3, MmC3	Martinsville till substratum-Miami clay loams, 6 to 12 percent slopes, severely eroded	MfC3	Martinsville, till substratum-Miami clay loams, 6 to 12 percent slopes, severely eroded
MmD3, MfD3	Miami clay loam, 12 to 18 percent slopes, severely eroded	MhD3	Miami clay loam, 15 to 20 percent slopes, severely eroded
MnB2	Miami-Crosier complex, 2 to 6 percent slopes, eroded	MkB2	Miami-Crosier complex, 2 to 6 percent slopes, eroded
Mr, Mr	Milford silty clay loam	Mm	Milford silty clay loam
Mo	Milford silt loam, pothole	Mo	Milford silt loam, pothole
Mp	Milford silty clay loam, occasionally flooded	Mp	Milford silty clay loam, occasionally flooded
Mt	Millsdale loam	Mt	Millsdale loam
MuB	Milton Variant, channery silt loam, 1 to 4 percent slopes, flaggy	MuB	Milton Variant, channery silt loam, 1 to 4 percent slopes, flaggy
Ad, Ln, Lb	Moundhaven-Landes Variant complex, frequently flooded	Mv	Moundhaven-Landes Variant complex, frequently flooded
MwA, Mw <sup>B</sup>	Mudlavia gravelly sandy loam, 0 to 2 percent slopes	MwB	Mudlavia gravelly sandy loam, 1 to 3 percent slopes

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## CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
MxA	Mudlavia Variant gravelly loam, 0 to 2 percent slopes	MxA	Mudlavia Variant gravelly loam, 0 to 2 percent slopes
OdA	Ockley silt loam, 0 to 2 percent slopes	OdA	Ockley silt loam, 0 to 2 percent slopes
OdB2	Ockley silt loam, 2 to 6 percent slopes, eroded	OdB2	Ockley silt loam, 2 to 6 percent slopes, eroded
OfB2	Ockley loam, till substratum, 2 to 6 percent slopes, eroded	OfB2	Ockley loam, till substratum, 2 to 6 percent slopes, eroded
OfA	Ockley-Rush silt loams, till substrata, 0 to 2 percent slopes	OgA	Ockley-Rush silt loams, till substrata, 0 to 2 percent slopes
OfC3	Ockley till substratum- Kendallville clay loams, 6 to 12 percent slopes, severely eroded	OhC3	Ockley, till substratum- Kendallville clay loams, 6 to 12 percent slopes, severely eroded
OrA	Ormas loamy sand, 0 to 2 percent slopes	OrA	Ormas loamy sand, 0 to 2 percent slopes
OrB	Ormas loamy sand, 2 to 6 percent slopes	OrB	Ormas loamy sand, 2 to 6 percent slopes
Pb	Palms muck, drained	Pb	Palms muck, drained
Pd	Palms muck, cobbly substratum, drained	Pd	Palms muck, cobbly substratum, drained
Pe	Palms Variant muck, drained	Pe	Palms Variant muck, drained
Pg	Patton silt loam	Pg	Patton silty clay loam
Pk	Pella silty clay loam	Pk	Pella silty clay loam

CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
PnB	Piankeshaw Variant gravelly sandy loam, 2 to 8 percent	PnB	Piankeshaw Variant gravelly sandy loam, rarely flooded 2 to 8 percent slopes
Pp	Pits, gravel	Pp	Pits, gravel
Pr	Pits, quarry	Pr	Pits, quarry
RmB2	Riddles-Miami loams, 2 to 6 percent slopes, eroded	RmB2	Riddles-Miami loams, 2 to 6 percent slopes, eroded
RmD2, RnD3	Riddles-Miami loams, 12 to 18 percent slopes, eroded	RmD2	Riddles-Miami loams, 12 to 18 percent slopes, eroded
RnC3	Riddles-Miami complex, 6 to 12 percent slopes, severely eroded	RnC3	Riddles-Miami complex, 6 to 12 percent slopes, severely eroded
CbA	Camden Variant silt loam, 0 to 2 percent slopes	RoA	Rockfield silt loam, 0 to 2 percent slopes
CcB2, MeB2	Camden Variant- Williamstown complex, 1 to 4 percent slopes, eroded	RrB2	Rockfield- Williamstown complex, 1 to 6 percent slopes, eroded
Rt	Ross fine sandy loam, protected	Rt	Ross fine sandy loam, protected
Ru	Ross loam, rarely flooded	Ru	Ross loam, rarely flooded
RwA	Rush silt loam, 0 to 2 percent slopes	RwA	Rush silt loam, 0 to 2 percent slopes
Sr	Sloan silt loam, rarely flooded	Sn	Sloan silt loam, rarely flooded
So	Sloan silt loam, occasionally flooded	So	Sloan silt loam, occasionally flooded

## CARROLL COUNTY, INDIANA --Continued

Field symbols	Field map unit name	Publication symbol	Approved map unit name
Ss	Sloan silt loam, bedrock substratum, occasionally flooded	Ss	Sloan silt loam, bedrock substratum, occasionally flooded
StA	Starks silt loam, 0 to 1 percent slopes	StA	Starks silt loam, 0 to 1 percent slopes
Ud	Udorthents, loamy	Ud	Udorthents, loamy
Wd	Wallkill silt loam	Wd	Wallkill silt loam
We	Warners Variant silt loam, 2 to 8 percent slopes, undrained	We	Warners Variant silt loam, 2 to 8 percent slopes, undrained
Wk	Washtenaw silt loam, frequently flooded	Wk	Washtenaw silt loam
WoA, Sp	Waynetown silt loam, 0 to 2 percent slopes	WoA	Waynetown silt loam, 0 to 2 percent slopes
WpA	Waynetown-Sleeth silt loams, till substrata, 0 to 1 percent slopes	WpA	Waynetown-Sleeth silt loams, till substrata, 0 to 1 percent slopes
Wr	Westland loam	Wr	Westland loam
Ws	Westland loam, shale substratum	Ws	Westland loam, shale substratum
WvB2	Williamstown silt loam, 2 to 6 percent slopes, eroded	WvB2	Williamstown silt loam, 2 to 6 percent slopes, eroded

Series Established by This Correlation:

None

Series Dropped or Made Inactive:

None

Certification Statement:

The state soil scientist verifies that:

1. Mapping was completed September 1986.
2. The general soil map for general planning has been joined with Clinton County (correlated in 1978) on the south, Howard County (correlated in 1967) and Cass County (correlated in 1979) on the east, Cass and White Counties (correlated in 1979) on the north, and White and Tippecanoe Counties (mapping completed but not correlated) on the west. A detailed join statement is on record. The detailed maps have been joined with the surrounding counties. A detailed join statement is on record.
3. Interpretations have been coordinated.
4. The location of the typical pedons in this county are in soil areas using that reference name.

Verification of Exact Cooperator Names:

The following will be on the front of the publication:

United States Department of Agriculture  
Soil Conservation Service  
In cooperation with  
Purdue University  
Agricultural Experiment Station  
and  
Indiana Department of Natural Resources  
State Soil Conservation Board and  
Division of Soil Conservation

The citation in the box on the inside of the front cover will read: "This survey was made cooperatively by the Soil Conservation Service, Purdue University Agricultural Experiment Station, and the Indiana Department of Natural Resources, State Soil Conservation Board, and Division of Soil Conservation. It is part of the technical assistance furnished to the Carroll County Soil and Water Conservation District. Financial assistance was made available by the Carroll County Board of County Commissioners."

Disposition of Original Atlas Field Sheets:

The original atlas field sheets for Carroll County will be retained by the Indiana State Office and will be used in the map compilation and finishing procedures. Copies have been made for fire protection purposes. The state office at Indianapolis will prepare the atlas sheets for publication by June 1988.

Prior Soil Survey Publications:

The first soil survey of Carroll County was published in 1958. This survey updates the first survey and provides additional information and larger maps that show the soil in greater detail.

Soil Survey of Carroll County, Indiana, Fieldwork by A.P. Bell, in charge; H.P. Ulrich, T.E. Barnes, and Sutton Meyers, Purdue University Agricultural Experiment Station; and J.G. Wade, Soil Conservation Service, United States Department of Agriculture.

Report prepared by H.P Ulrich, Purdue University Agricultural Experiment Station, 67 pages, illus., 1958.

Instructions for Map Finishing:

The conventional and special symbols used in this survey are listed on the attached SCS-SOILS-37A. These are the only symbols that will be shown on the published maps. The maps will be finished using the "Guide for Soil Map Finishing," July 1976.



## PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
AsB2	Alvin fine sandy loam, 2 to 8 percent slopes, eroded
At	Armiesburg silty clay loam, occasionally flooded
Ba	Beaucoup silty clay loam, rarely flooded (where drained)
Bb	Beaucoup silt loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
CaA	Camden silt loam, 0 to 1 percent slopes
CaB2	Camden silt loam, 2 to 6 percent slopes, eroded
Cg	Ceresco fine sandy loam, occasionally flooded (where drained)
Ck	Ceresco Variant fine sandy loam, occasionally flooded (where drained)
Cn	Cohoctah loam, occasionally flooded (where drained)
Cp	Cohoctah loam, gravelly substratum, occasionally flooded (where drained)
Cr	Cohoctah Variant very fine sandy loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
CvA	Crosby silt loam, 0 to 2 percent slopes (where drained)
CwB	Crosby-Fincastle silt loams, 1 to 3 percent slopes (where drained)
CyB	Crosier-Whitaker, till substratum, complex, 1 to 3 percent slopes (where drained)
Cz	Cyclone silty clay loam (where drained)
FaA	Fincastle-Starks silt loams, 0 to 1 percent slopes (where drained)
FbB	Fincastle-Starks silt loams, 1 to 3 percent slopes (where drained)
FsA	Fox sandy loam, 0 to 2 percent slopes
FsB2	Fox sandy loam, 2 to 6 percent slopes, eroded
Js	Jules-Stonelick complex, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
KcA	Kalamazoo loam, 0 to 2 percent slopes
KcB2	Kalamazoo loam, 2 to 6 percent slopes, eroded
KfA	Kendall silt loam, 0 to 1 percent slopes (where drained)

## PRIME FARMLAND--Continued

Map symbol	Soil name
KgA	Kendall-Fincastle silt loams, 0 to 1 percent slopes (where drained)
Ld	Landes fine sandy loam, rarely flooded
Lo	Landes loam, moderately wet, occasionally flooded
Ls	Landes-Moundhaven complex, occasionally flooded
Ma	Mahalasville silty clay loam, gravelly substratum (where drained)
Mb	Mahalasville silty clay loam, till substratum (where drained)
Mc	Mahalasville-Treaty silt loams (where drained)
MdB2	Martinsville, till substratum-Miami loams, 2 to 6 percent slopes, eroded
MkB2	Miami-Crosier complex, 2 to 6 percent slopes, eroded
Mm	Milford silty clay loam (where drained)
Mp	Milford silty clay loam, occasionally flooded (where drained)
Mt	Millsdale loam (where drained)
OdA	Ockley silt loam, 0 to 2 percent slopes
OdB2	Ockley silt loam, 2 to 6 percent slopes, eroded
OfB2	Ockley loam, till substratum, 2 to 6 percent slopes, eroded
OgA	Ockley-Rush silt loams, till substratum <sup>a</sup> , 0 to 2 percent slopes
Pg	Patton silty clay loam (where drained)
Pk	Pella silty clay loam (where drained)
RmB2	Riddles-Miami loams, 2 to 6 percent slopes, eroded
RoA	Rockfield silt loam, 0 to 2 percent slopes
RrB2	Rockfield-Williamstown complex, 1 to 6 percent slopes, eroded
Rt	Ross fine sandy loam, protected
Ru	Ross loam, rarely flooded
RwA	Rush silt loam, 0 to 2 percent slopes
Sn	Sloan silt loam, rarely flooded (where drained)
So	Sloan silt loam, occasionally flooded (where drained)
Ss	Sloan silt loam, bedrock substratum, occasionally flooded (where drained)
StA	Starks silt loam, 0 to 1 percent slopes (where drained)
Wk	Washtenaw silt loam (where drained)

## PRIME FARMLAND--Continued

Map symbol	Soil name
WoA	Waynetown silt loam, 0 to 2 percent slopes (where drained)
WpA	Waynetown-Sleeth silt loams, till substrata, 0 to 1 percent slopes (where drained)
Wr	Westland loam (where drained)
Ws	Westland loam, shale substratum (where drained)
WvB2	Williamstown silt loam, 2 to 6 percent slopes, eroded

Approved: September 22, 1987



RODNEY F. HARNER  
 Head, Soils Staff  
 Midwest NTC

CONVERSION LEGEND FOR  
CARROLL COUNTY, INDIANA

Field symbol	Publi- cation symbol						
Ad	Mv	Lb	Mv	Rt	Rt		
Ar	At	Lc	Ls	Ru	Ru		
AsB2	AsB2	Ln	Mv	RwA	RwA		
Bb	Bb	Ma	Ma	RnD3	RmD2		
Bd	Ba	Mb	Mb	So	So		
CaA	CaA	MdB2	MdB2	Sr	Sn		
CaB2	CaB2	MfC3	MfC3	Ss	Ss		
CbA	RoA	Mg	Mc	StA	StA		
CcB2	RrB2	MmD3	MhD3	Sp	WoA		
CeG	CeG	MnB2	MkB2	Ud	Ud		
Cg	Cg	Mo	Mo	Wd	Wd		
Cj	Ck	Mp	Mp	We	We		
CkB	CtB	Mr	Mm	Wk	Wk		
Cm	Cr	Mt	Mt	WoA	WoA		
Cn	Cn	MuB	MuB	WpA	WpA		
Cp	Cp	MwA	MwB	Wr	Wr		
CvA	CvA	MxA	MxA	Ws	Ws		
CwB	CwB	MeB2	RrB2	WvB2	WvB2		
CyB	CyB	MfD3	MhD3				
Cz	Cz	MmC3	MfC3				
CwA	CwB	Mr	Mm				
FbB	FbB	MwA	MwB				
FcA	FaA	OdA	OdA				
FsA	FsA	OdB2	OdB2				
FsB2	FsB2	OfA	OgA				
FtC3	FtC3	OfB2	OfB2				
FbA	FbB	OfC3	OhC3				
HkG	HkG	OrA	OrA				
HnG	HnG	OrB	OrB				
Hw	Hw	Pb	Pb				
Hx	Hw	Pd	Pd				
Jr	Jr	Pe	Pe				
Js	Js	Pg	Pg				
KcA	KcA	Pk	Pk				
KcB2	KcB2	PnB	PnB				
KfA	KfA	Pp	Pp				
KgA	KgA	Pr	Pr				
Ld	Ld	RmB2	RmB2				
Lo	Lo	RmD2	RmD2				
Ls	Ls	RnC3	RnC3				

CLASSIFICATION OF PEDONS SAMPLED FOR  
LABORATORY ANALYSIS

1. Pedons characterized at Purdue Laboratory with SCS-SOIL-8 forms completed.

<u>Sampled as</u>	<u>Pedon Sample No.</u>	<u>Publication Symbol</u>	<u>Approved Series Name or Classification</u>
Cyclone	S84IN15-2-(1-11)	Cz	Cyclone taxadjunct, does not have sufficient clay increase for an argillic horizon. <sup>1/2/</sup>
Fincastle	S84IN15-6-(1-9)	FaA	Fincastle taxadjunct, more clay in the subsoil and carbonates above a depth of 40 inches. Inclusion.
Kendall	S84IN15-5-(1-10)	KgA	Kendall, the lower part of the solum is browner than the series range. <sup>2/</sup>
Pella	S84IN15-3-(1-8)	Pk	Pella. <sup>1/2/</sup>
Starks loamy sub.	S84IN15-7-(1-9)	FaA	Starks. <sup>2/</sup>
Williamstown	S84IN15-1-(1-7)	WvB2	Williamstown, more sand in B horizon than typical for series. <sup>1/2/</sup>

2. Pedons characterized at National Soil Survey Laboratory with SCS-SOIL-8 forms completed.

Miami	S84IN15-11-(1-6)	RnC3	Miami
Rush till sub.	S84IN15-10-(1-8)	OgA	Rush, till substratum. <sup>2/</sup>
Waynetown	S84IN15-12-(1-10)	WpA	Waynetown, till substratum. Silt thickness is slightly less than series range. <sup>2/</sup>

3. Engineering test data and SCS-SOIL-8 and 10 forms completed for pedons tested by the State Highway Department of Indiana, Division of Materials and Tests.

Cyclone	S84IN15-2-(1-11)	Cz	Cyclone. <sup>1/2/</sup>
Miami	S84IN15-11-(1-6)	RnC3	Miami
Starks	S84IN15-7-(1-9)	FaA	Starks. <sup>2/</sup>

<sup>1/</sup>Representative pedon for the series in Carroll County.

<sup>2/</sup>Representative pedon for the map unit.

Notes to Accompany  
Classification and Correlation  
of the Soils of  
Carroll County, Indiana

by  
Gerald J. Post  
and  
Bill Hosteter

ALVIN SERIES

The solum is slightly thicker and the Bt horizon is slightly higher in sand content than is definitive for the series. However, this difference is not serious enough to consider this soil to be a taxadjunct.

ARMIESBURG SERIES

This soil is slightly calcareous from the surface to a depth of 15 inches and the mollic epipedon is slightly thicker than is definitive for the series. However, these differences are not serious enough to consider this soil to be a taxadjunct.

BEAUCOUP SERIES

The lower part of the B horizon and the C horizon contains free carbonates which are not typically in the series. The C horizon is also slightly coarser textured than the typical series range.

CERESCO VARIANT

This soil is calcareous throughout and formed in loamy alluvium.

COHOCTAH VARIANT

This soil is calcareous throughout.

CROSBY SERIES

Map unit CvA is on a terrace landform. Map unit CwB is a taxadjunct because it averages slightly less than 35 percent clay in the series texture control section.

CYCLONE SERIES

This soil is a taxadjunct because it does not have a sufficient clay increase for an argillic horizon. It classifies as a fine-silty, mixed, mesic Typic Haplaquoll.

FOX SERIES

The upper part of the subsoil has slightly more sand than is definitive for the series. However, this is not serious enough to consider this soil to be a taxadjunct.

JULES SERIES

The A horizon is slightly darker brown and the C horizon below a depth of 41 inches is slightly sandier than is definitive for the series. This difference is not serious enough to consider this soil to be a taxadjunct.

LANDES VARIANT

This soil is calcareous throughout.

MAHALASVILLE SERIES

The upper part of the 2Bt horizon has slightly more sand than is definitive for the series. This is not serious enough to consider this soil to be a taxadjunct.

MILLSDALE SERIES

This soil contains slightly less than 35 percent clay in the series texture control section and is considered to be a taxadjunct to the series. It classifies as a fine-loamy, mixed, mesic Typic Argiaquoll.

MILTON VARIANT

This soil formed in 10 to 20 inches of sediment over limestone bedrock.

MOUNDHAVEN SERIES

This soil does not have strata of material finer than loamy sand as required for the series. This difference is not considered serious enough to make this soil a taxadjunct.

MUDLAVIA VARIANT

This soil formed in loamy outwash containing many rock fragments. Limestone is at a depth of 20 to 40 inches.

PALMS VARIANT

This soil has limestone bedrock at a depth of 36 inches.

PIANKESHAW VARIANT

This soil is calcareous throughout.

ROSS SERIES

This soil has a thicker solum than is definitive for the series. This difference is not considered serious enough to make this soil a taxadjunct. Map unit Rt is protected from flooding by a U.S. Corps of Engineers levee.

WARNERS VARIANT

This soil is calcareous to the surface and is on a 2 to 8 percent slope.

WASHTENAW SERIES

The soil contains slightly less sand in the series texture control section than is definitive for the series. Thus, it is considered to be a taxadjunct to the series. It classifies as a fine-silty, mixed, nonacid, mesic Aeric Fluvaquent.

## CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates a taxadjunct to the series. See notes for a description of those characteristics of this taxadjunct that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alvin-----	Coarse-loamy, mixed, mesic Typic HapludalFs
Armiesburg---	Fine-silty, mixed, mesic Fluventic Hapludolls
Beaucoup-----	Fine-silty, mixed, mesic Fluvaquentic Haplaquolls
Camden-----	Fine-silty, mixed, mesic Typic HapludalFs
Casco-----	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic HapludalFs
Ceresco-----	Coarse-loamy, mixed, mesic Fluvaquentic Hapludolls
Ceresco Variant.	Coarse-loamy, mixed, mesic Fluvaquentic Hapludolls
Cohoctah-----	Coarse-loamy, mixed, mesic Fluvaquentic Haplaquolls
Cohoctah Variant.	Coarse-loamy, mixed (calcareous), mesic Fluvaquentic Haplaquolls
Coloma-----	Mixed, mesic Alfic Udipsamments
Crosby-----	Fine, mixed, mesic Aeric OchraqualFs
Crosier-----	Fine-loamy, mixed, mesic Aeric OchraqualFs
*Cyclone-----	Fine-silty, mixed, mesic Typic Argiaquolls
Fincastle----	Fine-silty, mixed, mesic Aeric OchraqualFs
Fox-----	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic HapludalFs
Hennepin-----	Fine-loamy, mixed, mesic Typic Eutrochrepts
Houghton-----	Euic, mesic Typic Medisaprists
Jules-----	Coarse-silty, mixed (calcareous), mesic Typic Udifluvents
Kalamazoo----	Fine-loamy, mixed, mesic Typic HapludalFs
Kendall-----	Fine-silty, mixed, mesic Aeric OchraqualFs
Kendallville	Fine-loamy, mixed, mesic Typic HapludalFs
Landes-----	Coarse-loamy, mixed, mesic Fluventic Hapludolls
Landes Variant.	Coarse-loamy, mixed, mesic Fluventic Hapludolls
Mahalasville	Fine-silty, mixed, mesic Typic Argiaquolls
Martinsville	Fine-loamy, mixed, mesic Typic HapludalFs
Miami-----	Fine-loamy, mixed, mesic Typic HapludalFs
Milford-----	Fine, mixed, mesic Typic Haplaquolls
*Millsdale----	Fine, mixed, mesic Typic Argiaquolls

## CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Milton Variant.	Loamy-skeletal, mixed, mesic Lithic HapludalFs
Moundhaven----	Sandy, mixed, mesic Typic Udifluvents
Mudlavia-----	Clayey-skeletal, mixed, mesic Typic HapludalFs
Mudlavia Variant.	Clayey-skeletal, mixed, mesic Typic HapludalFs
Ockley-----	Fine-loamy, mixed, mesic Typic HapludalFs
Ormas-----	Loamy, mixed, mesic Arenic HapludalFs
Palms-----	Loamy, mixed, euic, mesic Terric Medisaprists
Palms Variant	Loamy, mixed, euic, mesic Terric Medisaprists
Patton-----	Fine-silty, mixed, mesic Typic Haplaquolls
Pella-----	Fine-silty, mixed, mesic Typic Haplaquolls
Piankeshaw Variant.	Loamy-skeletal, mixed (calcareous), mesic Typic Udifluvents
Riddles-----	Fine-loamy, mixed, mesic Typic HapludalFs
Rockfield----	Fine-silty, mixed, mesic Typic HapludalFs
Ross-----	Fine-loamy, mixed, mesic Cumulic Hapludolls
Rush-----	Fine-silty, mixed, mesic Typic HapludalFs
Sleeth-----	Fine-loamy, mixed, mesic Aeric OchraqualFs
Sloan-----	Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls
Starks-----	Fine-silty, mixed, mesic Aeric OchraqualFs
Stonelick----	Coarse-loamy, mixed (calcareous), mesic Typic Udifluvents
Treaty-----	Fine-silty, mixed, mesic Typic Argiaquolls
Udorthents---	Loamy, mixed, mesic Typic Udorthents
Wallkill----	Fine-loamy, mixed, nonacid, mesic Thapto-Histic Fluvaquents
Warners Variant.	Coarse-silty, carbonatic, mesic Fluvaquentic Haplaquolls
*Washtenaw----	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Waynetown----	Fine-silty, mixed, mesic Aeric OchraqualFs
Westland----	Fine-loamy, mixed, mesic Typic Argiaquolls
Whitaker----	Fine-loamy, mixed, mesic Aeric OchraqualFs
Williamstown	Fine-loamy, mixed, mesic Aquic HapludalFs