CLASSIFICATION AND CORRELATION

OF

THE SOILS OF

STEUBEN COUNTY
INDIANA

JUNE 1979

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 68508

Classification and Correlation of the Soils of Steuben County, Indiana

This correlation was prepared by G. J. Post in phone consultation with DeWayne Williams, State Soil Specialist during January and February 1979. The final correlation is based on the draft of the manuscript, correlation samples, laboratory data, and field notes. The descriptive legend, field sheets, and field descriptions were reviewed by Williams and Post with the field party at the final field review the week of October 11, 1977. Many of the mapping units were firmed up at that time.

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 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.

SOIL CORRELATION OF
STEUBEN COUNTY, INDIANA
JANUARY 1979

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
Ad, Am	Adrian muck	Ad	Adrian muck, drained
Be, Lb	Beaches	Be	Beaches
BaA	Blount silt loam, 0 to 3 percent slopes	BnA	Blount silt loam, 0 to 3 percent slopes
BoB, BoA, BoB2	Boyer loamy sand, 0 to 6 percent slopes	BoB	Boyer-Ormas loamy sands, 0 to 6 percent slopes
BoC, BoC2	Boyer loamy sand, 6 to 12 percent slopes	BoC	Boyer-Ormas loamy sands, 6 to 12 percent slopes
BoD, BoD2, OhD2	Boyer loamy sand, 12 to 18 percent slopes	BoD	Boyer-Ormas loamy sands, 12 to 18 percent slopes
BtA	Brems fine sand	BtA	Brems loamy sand, 0 to 2 percent slopes
Bz, Bx	Brookston loam	Bz	Brookston loam
CaC, CaB, CaB2, CaC2, CaC3	Casco gravelly sandy loam, 6 to 12 percent slopes	CaC	Casco gravelly sandy loam, 6 to 12 percent slopes
CaD2, CaD3	Casco gravelly sandy loam, 12 to 18 percent slopes, eroded	CaD2	Casco gravelly sandy loam, 12 to 18 percent slopes, eroded
WcA	Warsaw sandy loam, 0 to 2 percent slopes	CcA	Carmi sandy loam, 0 to 2 percent slopes
ChB, ChA	Chelsea fine sand, 0 to 6 percent slopes	ChB	Chelsea fine sand, 1 to 6 percent slopes
ChC, ChD	Chelsea fine sand, 6 to 12 percent slopes	ChC	Chelsea fine sand, 6 to 12 percent slopes
Gf	Gilford sandy loam	Co	Cohoctah sandy loam

STEUBEN COUNTY, INDIANA --Continued

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
CrA, CsA	Crosier loam, 0 to 3 percent slopes	CrA	Crosier loam, 0 to 3 percent slopes
DrA, De, Dr	Del Rey silt loam	Dr	Del Rey silt loam
Ed	Edwards muck	Ed	Edwards muck, drained
MoB, MoB2	Morley silt loam, 2 to 6 percent slopes	GnB	Glynwood silt loam, 2 to 6 percent slopes
Gs, Md, Me	Granby loamy sand	Gs	Granby Variant loamy sand
HaA	Haskins loam, 0 to 3 percent slopes	HaA	Haskins loam, 0 to 3 percent slopes
Hx, Ma, Sf	Histosols, ponded	Hn	Histosols, ponded
Ht	Houghton muck	Ht	Houghton muck, undrained
Hw	Houghton muck, drained	Hw	Houghton muck, drained
FoA	Fox sandy loam, 0 to 2 percent slopes	KoA	Kosciusko sandy loam, 0 to 2 percent slopes
FoB, FoB2	Fox sandy loam, 2 to 6 percent slopes	KoB	Kosciusko sandy loam, 2 to 6 percent slopes
FxC, FoC, FoC2	Fox gravelly sandy loam, 6 to 12 percent slopes	KsC	Kosciusko gravelly sandy loam, 6 to 12 percent slopes
MbA	Martinsville sandy loam, 0 to 2 percent slopes	MbA	Martinsville loam, 0 to 2 percent slopes
MbB, MbB2	Martinsville sandy loam, 2 to 6 percent slopes	MbB	Martinsville loam, 2 to 6 percent slopes

STEUBEN COUNTY, INDIANA --Continued

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
MbC, MbC2	Martinsville sandy loam, 6 to 12 percent slopes	MbC	Martinsville loam, 6 to 12 percent slopes
Mc	Martisco muck	Mc	Martisco muck, undrained
MfB, MfA	Metea loamy sand, 0 to 6 percent slopes	MfB	Metea loamy sand, 1 to 6 percent slopes
MfC	Metea loamy sand, 6 to 12 percent slopes	MfC	Metea loamy sand, 6 to 12 percent slopes
MhB, MhB2	Miami loam, 2 to 6 percent slopes	MhB	Miami loam, 2 to 6 percent slopes
MhC, MhC2	Miami loam, 6 to 12 percent slopes	MhC	Miami loam, 6 to 12 percent slopes
MhD, MhD2	Miami loam, 12 to 18 percent slopes	MhD	Miami loam, 12 to 18 percent slopes
MhE, MhE2	Miami loam, 18 to 25 percent slopes	MhE	Miami loam, 18 to 25 percent slopes
MkC3	Miami clay loam, 6 to 12 percent slopes, severely eroded	MkC3	Miami clay loam, 6 to 12 percent slopes, severely eroded
MkD3	Miami clay loam, 12 to 18 percent slopes, severely eroded	MkD3	Miami clay loam, 12 to 18 percent slopes, severely eroded
Se, Sb	Sebewa loam	Mm	Millgrove loam
Mn, Bn	Milford silty clay loam	Mn	Milford silty clay loam
MoC2	Morley silt loam, 6 to 12 percent slopes, eroded	MoC2	Morley silt loam, 6 to 12 percent slopes, eroded
MoD2	Morley silt loam, 12 to 18 percent slopes, eroded	MoD2	Morley silt loam, 12 to 18 percent slopes, eroded

STEUBEN COUNTY, INDIANA --Continued

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
MoE2	Morley silt loam, 18 to 25 percent slopes, eroded	MoE2	Morley silt loam, 18 to 25 percent slopes, eroded
MrC3, MsC3	Morley silty clay loam, 6 to 12 percent slopes, severely eroded	MrC3	Morley silty clay loam, 6 to 12 percent slopes, severely eroded
MrD3, MsD3	Morley silty clay loam, 12 to 18 percent slopes, severely eroded	MrD3	Morley silty clay loam, 12 to 18 percent slopes, severely eroded
MxA, Td	Morocco loamy sand	Mx	Morocco loamy sand
Mz	Muskego muck	Mz	Muskego muck, drained
OhA	Oshtemo loamy sand, 0 to 2 percent slopes	OhA	Oshtemo-Ormas loamy sands, 0 to 2 percent slopes
ChB,OhB2	Oshtemo loamy sand, 2 to 6 percent slopes	OhB	Oshtemo-Ormas loamy sands, 2 to 6 percent slopes
OhC, OhC2	Oshtemo loamy sand, 6 to 12 percent slopes	OhC	Oshtemo-Ormas loamy sands, 6 to 12 percent slopes
OsC, OsC2	Oshtemo-Fox-Riddles complex, 4 to 12 percent slopes	OsC	Oshtemo-Kosciusko-Riddles complex, 4 to 12 percent slopes
Pa, Pd	Palms muck	Pa	Palms muck, drained
Pe	Pewamo silty clay loam	Pe	Pewamo silty clay loam
Pg, Gp	Pits, gravel	Pg	Pits, gravel
PnA, CcA	Plainfield fine sand, 0 to 2 percent slopes	PnA	Plainfield fine sand, 0 to 2 percent slopes

STEUBEN COUNTY, INDIANA --Continued

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
PnB, PnC, OcB, OcC	Plainfield fine sand, 2 to 6 percent slopes	PnB	Plainfield fine sand, 2 to 10 percent slopes
RaB, RaB2, RcB2, RaC2, RcC2	Rawson loam, 2 to 6 percent slopes	RaB	Rawson loam, 2 to 6 percent slopes
Rb, Rh	Rensselaer loam	Rb	Rensselaer loam
RxA	Riddles sandy loam, 0 to 2 percent slopes	RxA	Riddles sandy loam, 0 to 2 percent slopes
RxB, RxB2	Riddles sandy loam, 2 to 6 percent slopes	RxB	Riddles sandy loam, 2 to 6 percent slopes
RxC, RxC2	Riddles sandy loam, 6 to 12 percent slopes	RxC	Riddles sandy loam, 6 to 12 percent slopes
RxD, RxD2	Riddles sandy loam, 12 to 18 percent slopes	RxD	Riddles sandy loam, 12 to 18 percent slopes
BpA, AuA, Bs, Bp	Brady loamy sand	Ry	Riverdale loamy sand
Sh	Shcals loam	Sh	Shoals loam
Of, Cf	Orthents, loamy	Ud	Udorthents, loamy
Wa	Wallkill silt loam	Wa	Wallkill silt loam
Wh	Washtenaw silt loam	Wh	Washtenaw silt loam
WsB	Wawasee loam, 2 to 6 percent slopes	WsB	Wawasee loam, 2 to 6 percent slopes
WsC	Wawasee loam, 6 to 12 percent slopes	WsC	Wawasee loam, 6 to 12 percent slopes
WsD	Wawasee loam, 12 to 18 percent slopes	WsD	Wawasee loam, 12 to 18 percent slopes
WsE	Wawasee loam, 18 to 25 percent slopes	WsE	Wawasee loam, 18 to 25 percent slopes

STEUBEN COUNTY, INDIANA --Continued

Field symbols	Field mapping unit name	Publication symbol	Approved mapping unit name
WvC3, WsC3	Wawasee sandy clay loam, 6 to 12 percent slopes, severely eroded	WvC3	Wawasee sandy clay loam, 6 to 12 percent slopes, severely eroded
WvD3, WsD3	Wawasee sandy clay loam, 12 to 18 percent slopes, severely eroded	WvD3	Wawasee sandy clay loam, 12 to 18 percent slopes, severely eroded
WtA	Whitaker loam	Wx	Whitaker loam

Steuben County, Indiana

Series established by this correlation:

Kosciusko (Steuben County)

Series dropped or made inactive:

None

Certification Statement:
Steuben County joins the completed Williams County, Ohio, soil survey. The general soil map and the detailed maps are adequately joined to this survey. The other adjoining counties do not have published soil surveys.

All typical pedons are located in a delineation of the named soil.

All field mapping has been completed.

Verification of Cooperator Names:
On the front cover, the cooperators citation will read:

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

In the box on the inside of the front cover, the statement will include the above as well as the following:

"Financial assistance was made available by the Steuben County Board of County Commissioners."

Prior Soil Survey Publications:
A reference to the 1933 Steuben County soil survey should be in the introduction of this publication. The prior published survey will be a literature citation. For example: "The first soil survey of Steuben County was completed in 1933 and published in 1940 (ref. cit. see below)." This survey updates the first survey and provides additional information and larger maps that show the soils in greater detail.

> Soil Survey of Steuben County, Indiana. Smith, L. R., Tharp, W. E., Leighty, W. J., Bushnel, T. M., and Ulrich, H. P., U.S. Department of Agriculture, Bureau of Plant Industry, in cooperation with the Purdue University Agricultural Experiment Station, 63 pp., Illus., 1940.

Disposition of Field Sheets:
The original field sheets are retained in the State and are to be used in map finishing.

Instructions for Map Compilation and Finishing:
The conventional and special symbols used in field mapping will be compiled using the appropriate symbols from SCS-SOILS-37A.

SCS SO-30A
3-75

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

Soil Survey Area: Steuben County
State: Indiana

Date: 6-78

CULTURAL FEATURES

BOUNDARIES

National, state, or province

County or parish

Minor civil division

Reservation (national forest or park, state forest or park, and large airport)

Field sheet matchline & neatline

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)

County, farm or ranch

ROAD EMBLEMS & DESIGNATIONS

Interstate 66

Federal 287

State 52

RAILROAD

LEVEES

Without road

DAMS

Medium or small

PITS

Gravel pit

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)

Church

School

WATER FEATURES

DRAINAGE

Perennial, single line

Intermittent

Drainage end

Canals or ditches

Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial water w

MISCELLANEOUS WATER FEATURES

Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SOIL SYMBOLS

ESCARPMENTS CeA FoB2

SHORT STEEP SLOPE

DEPRESSION OR SINK

MISCELLANEOUS

Sandy spot

Severely eroded spot

Stony spot, very stony spot

RECOMMENDED AD HOC SOIL SYMBOLS

marl spot

muck spot

cobbly spot

Approved: June 1, 1979

Maurice Stout Jr.

Maurice Stout, Jr.
Head, Soils Staff
Midwest TSC

CONVERSION LEGEND FOR
STEUBEN COUNTY, INDIANA
JANUARY 1979

Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol	Field symbol	Publication symbol
Ad	Ad	FxC	KsC	MxA	Mx	WsC	WsC
Am	Ad	Gf	Co	Mz	Mz	WsC3	WvC3
AuA	Ry	Gp	Pg	OcA	PnA	WsD	WsD
BaA	BnA	Gs	Gs	OcB	PnB	WsD3	WvD3
Be	Be	HaA	HaA	OcC	PnB	WsE	WsE
				Of	Ud		
Bn	Mn	Ht	Ht	OhA	OhA	WtA	Wx
BoA	BoB	Hw	Hw	OhB	OhB	WvC3	WvC3
BoB	BoB	Hx	Hn	OhB2	OhB	WvD3	WvD3
BoB2	BoB	Lb	Be	OhC	OhC		
BoC	BoC	Ma	Hn	OhC2	OhC		
BoC2	BoC			OhD2	BoD		
BoD	BoD	MbA	MbA	OsC	OsC		
BoD2	BoD	MbB	MbB	OsC2	OsC		
BpA	Ry	MbB2	MbB	Pa	Pa		
Bp	Ry	MbC	MbC	Pd	Pa		
Bs	Ry	MbC2	MbC	Pe	Pe		
BtA	BtA						
Bx	Bz	Mc	Mc	Pg	Pg		
Bz	Bz	Md	Gs	PnA	PnA		
CaB	CaC	Me	Gs	PnB	PnB		
CaB2	CaC	MfA	MfB	PnC	PnB		
CaC	CaC	MfB	MfB	RaB	RaB		
		MfC	MfC				
CaC2	CaC	MhB	MhB	RaB2	RaB		
CaC3	CaC	MhB2	MhB	RaC2	RaB		
CaD2	CaD2	MhC	MhC	Rb	Rb		
CaD3	CaD2	MhC2	MhC	RcB2	RaB		
Cf	Ud	MhD	MhD	RcC2	RaB		
				Rh	Rb		
ChA	ChB	MhD2	MhD	RxA	RxA		
ChB	ChB	MhE	MhE	RxB	RxB		
ChC	ChC	MhE2	MhE	RxB2	RxB		
ChD	ChC	MkC3	MkC3	RxC	RxC		
CrA	CrA	MkD3	MkD3	RxC2	RxC		
CsA	CrA	Mn	Mn	RxD	RxD		
De	Dr	MoB	GnB	RxD2	RxD		
DrA	Dr	MoB2	GnB	Sb	Mm		
Dr	Dr	MoC2	MoC2	Se	Mm		
Ed	Ed	MoD2	MoD2	Sf	Hn		
				Sh	Sh		
FoA	KoA	MoE2	MoE2	Td	Mx		
FoB	KoB	MrC3	MrC3	Wa	Wa		
FoB2	KoB	MrD3	MrD3	WcA	CcA		
FoC	KsC	MsC3	MrC3	Wh	Wh		
FoC2	KsC	MsD3	MrD3	WsB	WsB		

CLASSIFICATION OF PEDONS SAMPLED FOR LABORATORY ANALYSIS

There are considerable data available from a number of pedons in this survey area; however, much of this data is for partial pedons as well as only partial data on the complete pedons that were sampled. All the data is being reviewed by the state and proper classification determined. This data will be stored on the Purdue Computer System.

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

by
Gerald J. Post

CARMI SERIES

These soils were previously mapped as Warsaw; however, they are coarse-loamy, lack an argillic horizon, and fit the Carmi series concept.

COHOCTAH SERIES

These soils were previously mapped as Gilford. Most of these areas are on the flood plain and they classify as Fluvaquentic Haplaquolls and fit the Cohoctah series concept.

GRANBY VARIANT

These soils are similar morphologically to Granby, but they are on the flood plain and are sandy Fluvaquentic Haplaquolls. The state does not expect to have need for this soil in any other surveys.

KOSCIUSKO SERIES

This series is established by this correlation. These soils were formerly mapped in the Fox series; however, they differ from Fox by not having a contrasting texture within a depth of 40 inches, they have 15 to 35 percent gravel in the Bt horizon, and they have 18 to 27 percent clay in the argillic horizon.

METEA SERIES

This soil is a taxadjunct to the Metea series. It has about 10 percent gravel in the upper sandy layers and this is outside the defined range of the series.

MILLGROVE SERIES

These soils were mapped as Sebawa during the survey; however, they lack having a contrasting texture within the series control section and fit the Millgrove series concept.

ORMAS SERIES

The Ormas series in the Boyer-Ormas loamy sand mapping units are taxadjunct to the Ormas series because they have more gravel in the solum than is allowed in the defined range of the series.

PALMS SERIES

This soil is a taxadjunct to the Palms series because it is strongly or very strongly acid in the IIC horizon. This is outside the defined range of the series.

RAWSON SERIES

This soil is a taxadjunct to the Rawson series because of low chroma coatings on ped faces in the upper 10 inches of the argillic horizon.

RIDDLE SERIES

This soil in this county has a friable substratum with permeability exceeding an inch per hour.

RIVERDALE SERIES

These soils were mapped as Brady during the survey; however, they class as Aquic Arenic Hapludalfs and fit the Riverdale series concept except for having a slightly thicker solum than is defined for the series; thus, they are considered to be taxadjuncts to the Riverdale series.

✓ and ⊃ added to manuscript

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
Adriam	Sandy or sandy-skeletal, mixed, euic, mesic Terric Medisaprists
Blount	Fine, illitic, mesic Aeric Ochraqualfs
Boyer	Coarse-loamy, mixed, mesic Typic Hapludalfs
Brems	Mixed, mesic Aquic Udipsamments
Brookston	Fine-loamy, mixed, mesic Typic Argiaquolls
Carmi	Coarse-loamy, mixed, mesic Typic Hapludolls
Casco	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Hapludalfs
Chelsea	Mixed, mesic Alfic Udipsamments
Cohoctah	Coarse-loamy, mixed, mesic Fluvaquentic Haplaquolls
Crosier	Fine-loamy, mixed, mesic Aeric Ochraqualfs
Del Rey	Fine, illitic, mesic Aeric Ochraqualfs
Edwards	Marly, euic, mesic Limnic Medisaprists
Glynwood	Fine, illitic, mesic Aquic Hapludalfs
Granby Variant.	Sandy, mixed, mesic Typic Haplaquolls
Haskins	Fine-loamy, mixed, mesic Aeric Ochraqualfs
Histosols.	Euic, mesic Medisaprists
Houghton	Euic, mesic Typic Medisaprists
Kosciusko	Fine-loamy, mixed, mesic Typic Hapludalfs
Martinsville	Fine-loamy, mixed, mesic Typic Hapludalfs
Martisco	Fine-silty, carbonatic, mesic Histic Humaquepts
*Metea	Loamy, mixed, mesic Arenic Hapludalfs
Miami	Fine-loamy, mixed, mesic Typic Hapludalfs
Milford	Fine, mixed, mesic Typic Haplaquolls
Millgrove	Fine-loamy, mixed, mesic Typic Argiaquolls
Morley	Fine, illitic, mesic Typic Hapludalfs
Morocco	Mixed, mesic Aquic Udipsamments
Muskego	Coprogenous, euic, mesic Limnic Medisaprists
Ormas	Loamy, mixed, mesic Arenic Hapludalfs

CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Oshtemo	Coarse-loamy, mixed, mesic Typic Hapludalfs
*Palms	Loamy, mixed, euic, mesic Terric Medisaprists
Pewamo	Fine, mixed, mesic Typic Argiaquolls
Plainfield	Mixed, mesic Typic Udipsamments
*Rawson	Fine-loamy, mixed, mesic Typic Hapludalfs
Rensselaer	Fine-loamy, mixed, mesic Typic Argiaquolls
Riddles	Fine-loamy, mixed, mesic Typic Hapludalfs
*Riverdale	Loamy, mixed, mesic Aquic Arenic Hapludalfs
Shoals	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Udorthents.	Loamy, mixed, nonacid, mesic Typic Udorthents
Wallkill	Fine-loamy, mixed, nonacid, mesic Thapto-Histic Fluvaquents
Washtenaw	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Wawasee	Fine-loamy, mixed, mesic Typic Hapludalfs
Whitaker	Fine-loamy, mixed, mesic Aeric Ochraqualfs