United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Shannon County, Missouri

Akers Land Assignment

February 9, 2012

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

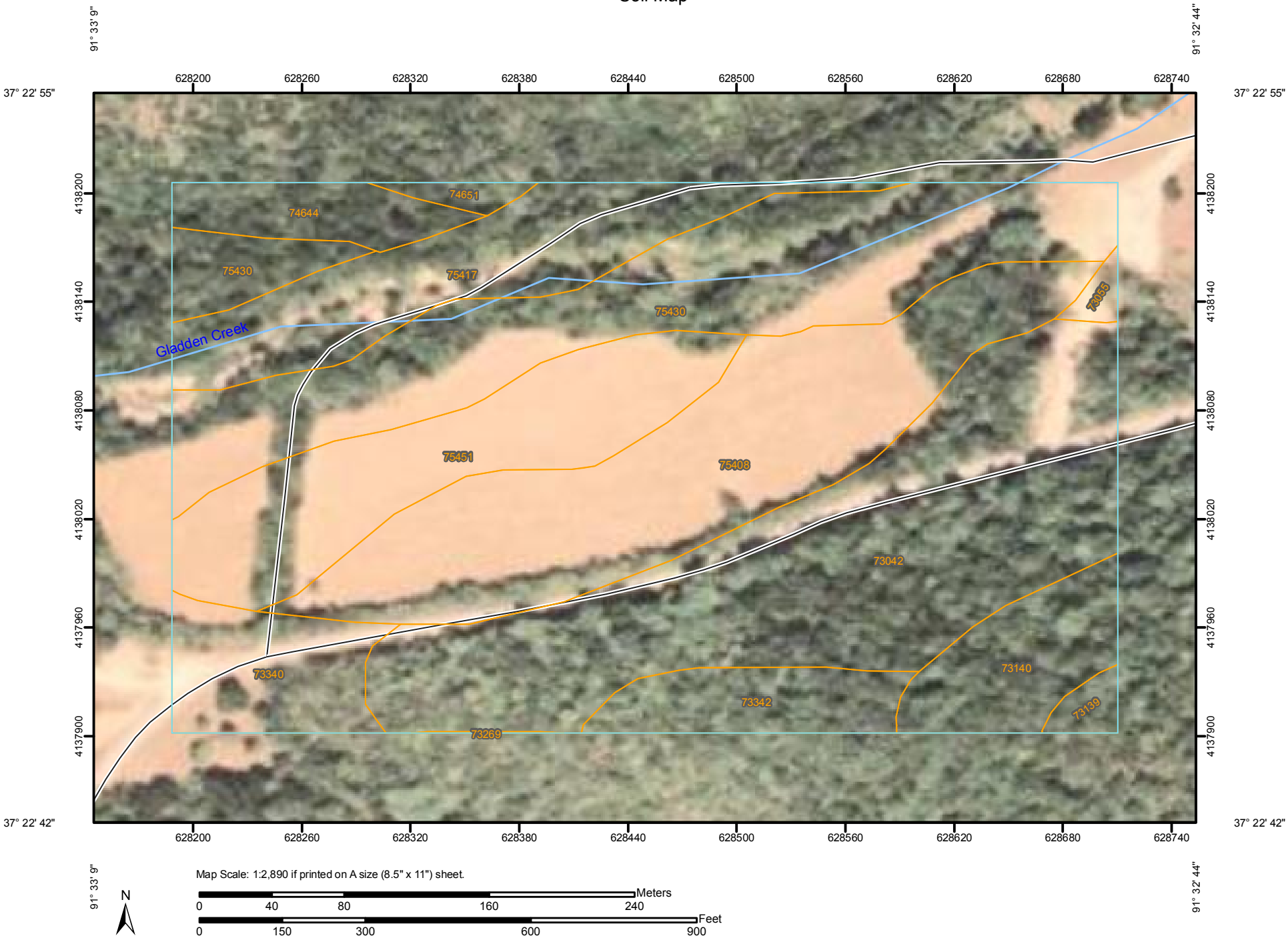
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,890 if printed on A size (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 150 300 600 900

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:2,890 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shannon County, Missouri
Survey Area Data: Version 10, Dec 27, 2011

Date(s) aerial images were photographed: 8/11/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Shannon County, Missouri (MO203)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony	9.7	24.6%
73055	Alred-Rueter complex, 15 to 35 percent slopes, very stony	0.2	0.4%
73139	Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony	0.3	0.6%
73140	Clarksville-Scholten complex, 15 to 45 percent slopes, very stony	1.8	4.5%
73269	Brussels-Gasconade-Rock outcrop complex, 35 to 90 percent slopes, very bouldery	0.0	0.0%
73340	Rueter-Gepp complex, 8 to 15 percent slopes, stony	1.8	4.7%
73342	Alred-Arkana complex, 8 to 15 percent slopes, rocky	1.4	3.6%
74644	Deible silt loam, 1 to 3 percent slopes	1.1	2.9%
74651	Waben gravelly silt loam, 3 to 8 percent slopes	0.2	0.6%
75408	Secesh silt loam, 0 to 3 percent slopes, rarely flooded	7.2	18.3%
75417	Relfe-Sandbur complex, 0 to 3 percent slopes, frequently flooded	3.6	9.2%
75430	Wideman fine sandy loam, 0 to 3 percent slopes, occasionally flooded	7.8	19.7%
75451	Gladden silt loam, 0 to 3 percent slopes, occasionally flooded	4.3	10.8%
Totals for Area of Interest		**39.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be

made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Shannon County, Missouri

73042—Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony

Map Unit Setting

Elevation: 800 to 1,200 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Niangua and similar soils: 60 percent
Bardley and similar soils: 30 percent

Description of Niangua

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite over dolomite

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: Quercus alba-Quercus rubra/Cercis canadensis (F116AY016MO), Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY048MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 3 inches: Very gravelly silt loam
3 to 14 inches: Very gravelly silt loam
14 to 52 inches: Clay
52 to 80 inches: Bedrock

Description of Bardley

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite over dolomite

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: Quercus alba-Quercus rubra/Cercis canadensis (F116AY016MO), Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY048MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 4 inches: Very gravelly silt loam
4 to 8 inches: Extremely gravelly silt loam
8 to 27 inches: Clay
27 to 80 inches: Bedrock

73055—Alred-Rueter complex, 15 to 35 percent slopes, very stony

Map Unit Setting

Elevation: 700 to 1,300 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Alred and similar soils: 50 percent
Rueter and similar soils: 35 percent

Description of Alred

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: 14 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 6s
Ecological site: Quercus alba-Quercus rubra/Cornus florida (F116AY002MO), Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY050MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 4 inches: Gravelly silt loam
4 to 8 inches: Gravelly silt loam
8 to 22 inches: Very gravelly silty clay loam
22 to 79 inches: Gravelly clay

Description of Rueter

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Ecological site: Quercus alba-Quercus rubra/Cornus florida (F116AY002MO), Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY050MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile
0 to 6 inches: Very gravelly silt loam
6 to 10 inches: Gravelly silt loam
10 to 28 inches: Very gravelly silt loam
28 to 42 inches: Very gravelly clay
42 to 79 inches: Very cobbly clay

73139—Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony

Map Unit Setting
Elevation: 700 to 1,300 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition
Poynor and similar soils: 35 percent
Clarksville and similar soils: 32 percent
Scholten and similar soils: 15 percent

Description of Poynor

Setting
Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities
Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability (nonirrigated): 4e

Ecological site: Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY012MO), Pinus echinata-Quercus stellata/Schizachyrium scoparium (F116AY056MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 4 inches: Gravelly silt loam
4 to 13 inches: Very gravelly silt loam
13 to 24 inches: Extremely gravelly silt loam
24 to 79 inches: Clay

Description of Clarksville

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY012MO), Pinus echinata-Quercus stellata/Schizachyrium scoparium (F116AY056MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 5 inches: Gravelly silt loam
5 to 8 inches: Gravelly silt loam
8 to 18 inches: Very gravelly loam
18 to 42 inches: Very gravelly loam
42 to 79 inches: Clay

Description of Scholten

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Slope alluvium over pedisediment over residuum weathered from dolomite

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 13 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY012MO), Pinus echinata-Quercus stellata/Schizachyrium scoparium (F116AY056MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 3 inches: Gravelly silt loam
3 to 8 inches: Gravelly silt loam
8 to 17 inches: Very gravelly silty clay loam
17 to 41 inches: Very gravelly silt loam
41 to 79 inches: Gravelly clay

73140—Clarksville-Scholten complex, 15 to 45 percent slopes, very stony

Map Unit Setting

Elevation: 800 to 1,500 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Clarksville and similar soils: 50 percent
Scholten and similar soils: 30 percent

Description of Clarksville

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability (nonirrigated): 6e
Ecological site: Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY013MO), Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY049MO), Pinus echinata-Quercus stellata/Schizachyrium scoparium (F116AY057MO), Pinus echinata-Quercus alba/Vaccinium arboreum/Schizachyrium scoparium (F116AY058MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 6 inches: Very gravelly silt loam
6 to 13 inches: Gravelly silt loam
13 to 21 inches: Very gravelly silt loam
21 to 43 inches: Extremely gravelly clay loam
43 to 79 inches: Very gravelly clay

Description of Scholten

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium over pedisediment over residuum weathered from dolomite

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 16 to 36 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 14 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY013MO), Quercus stellata-Quercus marilandica/Schizachyrium scoparium (F116AY049MO), Pinus echinata-Quercus stellata/Schizachyrium scoparium (F116AY057MO), Pinus echinata-Quercus alba/Vaccinium arboreum/Schizachyrium scoparium (F116AY058MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 6 inches: Very gravelly silt loam
6 to 13 inches: Very gravelly silt loam
13 to 34 inches: Extremely gravelly clay loam
34 to 58 inches: Very gravelly loam
58 to 79 inches: Very gravelly clay

73269—Brussels-Gasconade-Rock outcrop complex, 35 to 90 percent slopes, very bouldery

Map Unit Setting

Elevation: 600 to 1,100 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Brussels and similar soils: 40 percent
Gasconade and similar soils: 30 percent
Rock outcrop: 15 percent

Description of Brussels

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from dolomite

Properties and qualities

Slope: 35 to 90 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability (nonirrigated): 7e
Ecological site: Quercus rubra-Acer saccharum/Asimina triloba (F116AY022MO), Quercus muehlenbergii-Fraxinus americana (F116AY062MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 10 inches: Gravelly silty clay loam
10 to 49 inches: Very gravelly silty clay loam
49 to 79 inches: Gravelly silty clay loam

Description of Gasconade

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from dolomite

Properties and qualities

Slope: 35 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.3 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Ecological site: Limestone/Dolomite Protected Backslope Glade/Woodland Complex (R116AY021MO), Limestone/Dolomite Exposed Backslope Glade/Woodland Complex (R116AY052MO)
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)

Typical profile

0 to 9 inches: Flaggy clay
9 to 14 inches: Very flaggy clay
14 to 79 inches: Bedrock

Description of Rock Outcrop

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 79 inches: Unweathered bedrock

73340—Rueter-Gepp complex, 8 to 15 percent slopes, stony

Map Unit Setting

Elevation: 800 to 1,200 feet

Mean annual precipitation: 39 to 49 inches

Mean annual air temperature: 54 to 59 degrees F

Frost-free period: 172 to 232 days

Map Unit Composition

Rueter and similar soils: 50 percent

Gepp and similar soils: 35 percent

Description of Rueter

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Slope alluvium over residuum weathered from cherty limestone

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 0.1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Ecological site: Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY011MO)

Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 6 inches: Very gravelly silt loam
6 to 10 inches: Gravelly silt loam
10 to 28 inches: Very gravelly silt loam
28 to 42 inches: Very gravelly clay
42 to 79 inches: Very cobbly clay

Description of Gepp

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY011MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 4 inches: Gravelly silt loam
4 to 9 inches: Very gravelly silt loam
9 to 17 inches: Gravelly clay
17 to 79 inches: Clay

73342—Alred-Arkana complex, 8 to 15 percent slopes, rocky

Map Unit Setting

Elevation: 500 to 1,500 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Alred and similar soils: 50 percent
Arkana and similar soils: 35 percent
Minor components: 1 percent

Description of Alred

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from cherty limestone

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 14 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Quercus alba-Quercus stellata/Schizachyrium scoparium (F116AY011MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 8 inches: Very gravelly silt loam
8 to 11 inches: Gravelly silt loam
11 to 24 inches: Very gravelly silt loam
24 to 79 inches: Cobbly clay

Description of Arkana

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 24 to 45 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.2 inches)

Interpretive groups

Land capability (nonirrigated): 4e
Ecological site: Quercus muehlenbergii-Fraxinus americana/Schizachyrium scoparium (F116AY009MO)
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 5 inches: Very gravelly silt loam
5 to 17 inches: Gravelly clay
17 to 25 inches: Clay
25 to 79 inches: Bedrock

Minor Components

Rock outcrop

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex

74644—Deible silt loam, 1 to 3 percent slopes

Map Unit Setting

Elevation: 300 to 1,300 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Deible and similar soils: 90 percent

Description of Deible

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess over alluvium

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 11 to 22 inches to abrupt textural change
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability (nonirrigated): 3w
Ecological site: Quercus macrocarpa-Quercus shumardii/Chasmanthium latifolium (F116AY035MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 10 inches: Silt loam
10 to 15 inches: Silt loam
15 to 37 inches: Silty clay
37 to 80 inches: Silty clay loam

74651—Waben gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 1,000 to 1,400 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Waben and similar soils: 90 percent

Description of Waben

Setting

Landform: Alluvial fans
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium over alluvium

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability (nonirrigated): 3e
Ecological site: Quercus Alba-Quercus rubra/Cornus florida (F116AY031MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 4 inches: Gravelly silt loam
4 to 22 inches: Very gravelly silt loam
22 to 47 inches: Very gravelly silt loam
47 to 80 inches: Very gravelly clay loam

75408—Secesh silt loam, 0 to 3 percent slopes, rarely flooded

Map Unit Setting

Elevation: 400 to 1,000 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Secesh and similar soils: 80 percent
Minor components: 2 percent

Description of Secesh

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Acer saccharum-Quercus rubra/Asimina triloba (F116AY034MO)
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)

Typical profile

0 to 8 inches: Silt loam
8 to 11 inches: Silt loam
11 to 27 inches: Gravelly loam
27 to 80 inches: Very gravelly clay loam

Minor Components

Moniteau

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)

75417—Relfe-Sandbur complex, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

Elevation: 330 to 1,300 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Relfe and similar soils: 40 percent
Sandbur and similar soils: 30 percent
Minor components: 2 percent

Description of Relfe

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.4 inches)

Interpretive groups

Land capability (nonirrigated): 4s

Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 6 inches: Very gravelly sandy loam
6 to 80 inches: Stratified extremely cobbly coarse sand to very gravelly loamy sand

Description of Sandbur

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w
Ecological site: Fraxinus pennsylvanica-Ulmus americana/Ilex decidua (F116AY041MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 8 inches: Fine sandy loam
8 to 50 inches: Stratified loamy fine sand to silt loam
50 to 80 inches: Very gravelly sandy loam

Minor Components

Farewell

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)

75430—Wideman fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

Elevation: 600 to 900 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Wideman and similar soils: 90 percent

Description of Wideman

Setting

Landform: Flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability (nonirrigated): 3s
Ecological site: Betula nigra-Platanus occidentalis (F116AY042MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 5 inches: Fine sandy loam
5 to 13 inches: Loamy sand
13 to 21 inches: Loam
21 to 49 inches: Coarse sand
49 to 80 inches: Gravelly sandy loam

75451—Gladden silt loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

Elevation: 700 to 900 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Map Unit Composition

Gladden and similar soils: 85 percent

Description of Gladden

Setting

Landform: Flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium over gravelly alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability (nonirrigated): 2w
Ecological site: Acer saccharum-Quercus rubra/Asimina triloba (F116AY039MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Typical profile

0 to 5 inches: Silt loam
5 to 53 inches: Gravelly loam
53 to 80 inches: Extremely gravelly coarse sandy loam

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit (ALA)

This rating indicates the proportion of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is designated as "all hydric," "partially hydric," "not hydric," or "unknown hydric," depending on the rating of its respective components.

"All hydric" means that all components listed for a given map unit are rated as being hydric, while "not hydric" means that all components are rated as not hydric. "Partially hydric" means that at least one component of the map unit is rated as hydric, and at least one component is rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part

(Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

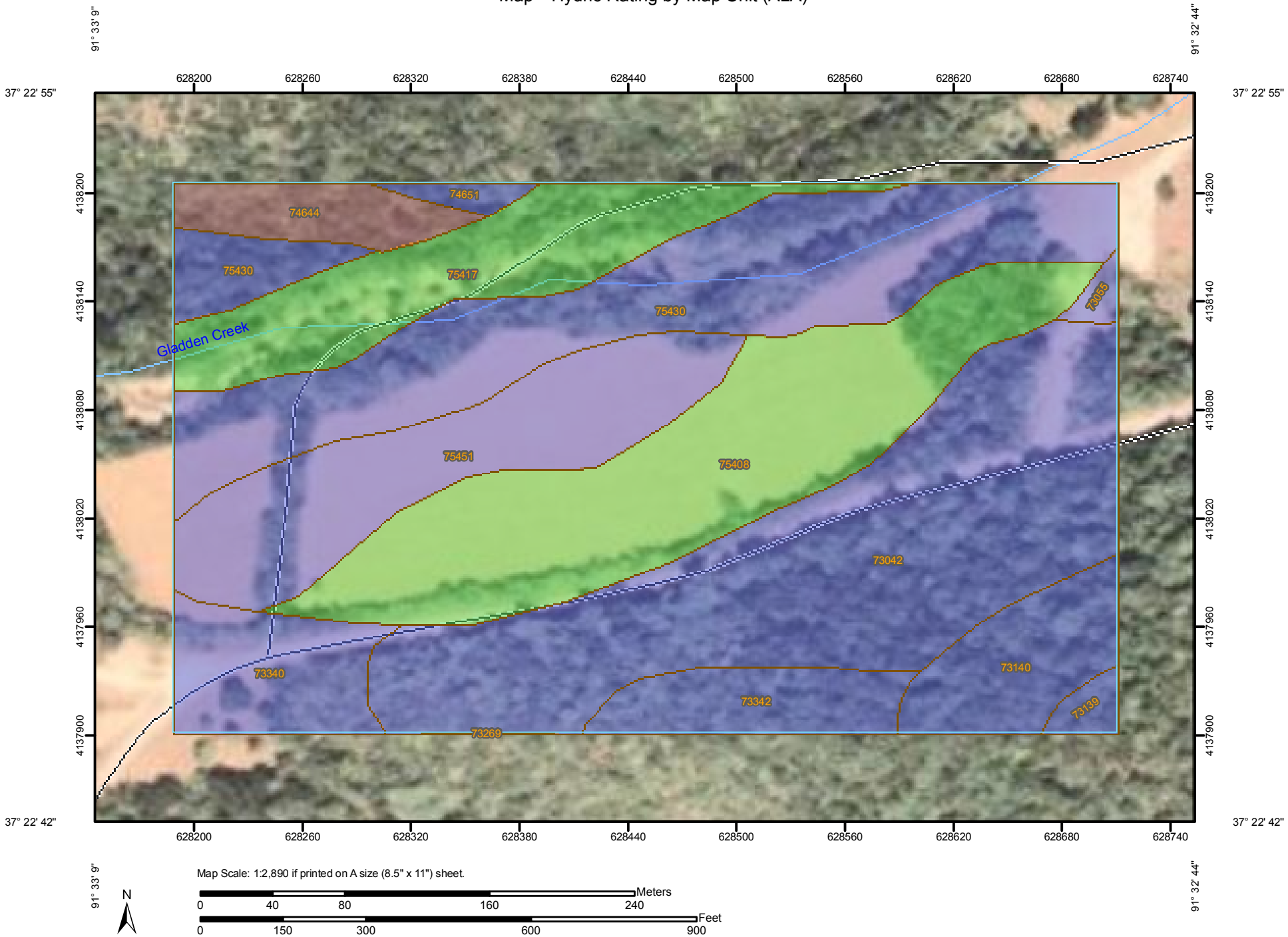
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Custom Soil Resource Report
Map—Hydric Rating by Map Unit (ALA)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- All Hydric
- Partially Hydric
- Not Hydric
- Unknown Hydric
- Not rated or not available

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:2,890 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shannon County, Missouri
Survey Area Data: Version 10, Dec 27, 2011

Date(s) aerial images were photographed: 8/11/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit (ALA)

Hydric Rating by Map Unit— Summary by Map Unit — Shannon County, Missouri (MO203)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony	Not Hydric	9.7	24.6%
73055	Alred-Rueter complex, 15 to 35 percent slopes, very stony	Not Hydric	0.2	0.4%
73139	Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony	Not Hydric	0.3	0.6%
73140	Clarksville-Scholten complex, 15 to 45 percent slopes, very stony	Not Hydric	1.8	4.5%
73269	Brussels-Gasconade-Rock outcrop complex, 35 to 90 percent slopes, very bouldery	Not Hydric	0.0	0.0%
73340	Rueter-Gepp complex, 8 to 15 percent slopes, stony	Not Hydric	1.8	4.7%
73342	Alred-Arkana complex, 8 to 15 percent slopes, rocky	Not Hydric	1.4	3.6%
74644	Deible silt loam, 1 to 3 percent slopes	All Hydric	1.1	2.9%
74651	Waben gravelly silt loam, 3 to 8 percent slopes	Not Hydric	0.2	0.6%
75408	Secesh silt loam, 0 to 3 percent slopes, rarely flooded	Partially Hydric	7.2	18.3%
75417	Relfe-Sandbur complex, 0 to 3 percent slopes, frequently flooded	Partially Hydric	3.6	9.2%
75430	Wideman fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Not Hydric	7.8	19.7%
75451	Gladden silt loam, 0 to 3 percent slopes, occasionally flooded	Not Hydric	4.3	10.8%
Totals for Area of Interest			**39.3**	**100.0%**

Rating Options—Hydric Rating by Map Unit (ALA)

Aggregation Method: Absence/Presence

Tie-break Rule: Lower

Land Management

Land management interpretations are tools designed to guide the user in evaluating existing conditions in planning and predicting the soil response to various land management practices, for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture, and rangeland. Example interpretations include suitability for a variety of irrigation practices, log landings, haul roads and major skid trails, equipment operability, site preparation, suitability for hand and mechanical

planting, potential erosion hazard associated with various practices, and ratings for fencing and waterline installation.

Erosion Hazard (Road, Trail) (ALA)

The ratings in this interpretation indicate the hazard of soil loss from unsurfaced roads and trails. The ratings are based on soil erosion factor K, slope, and content of rock fragments.

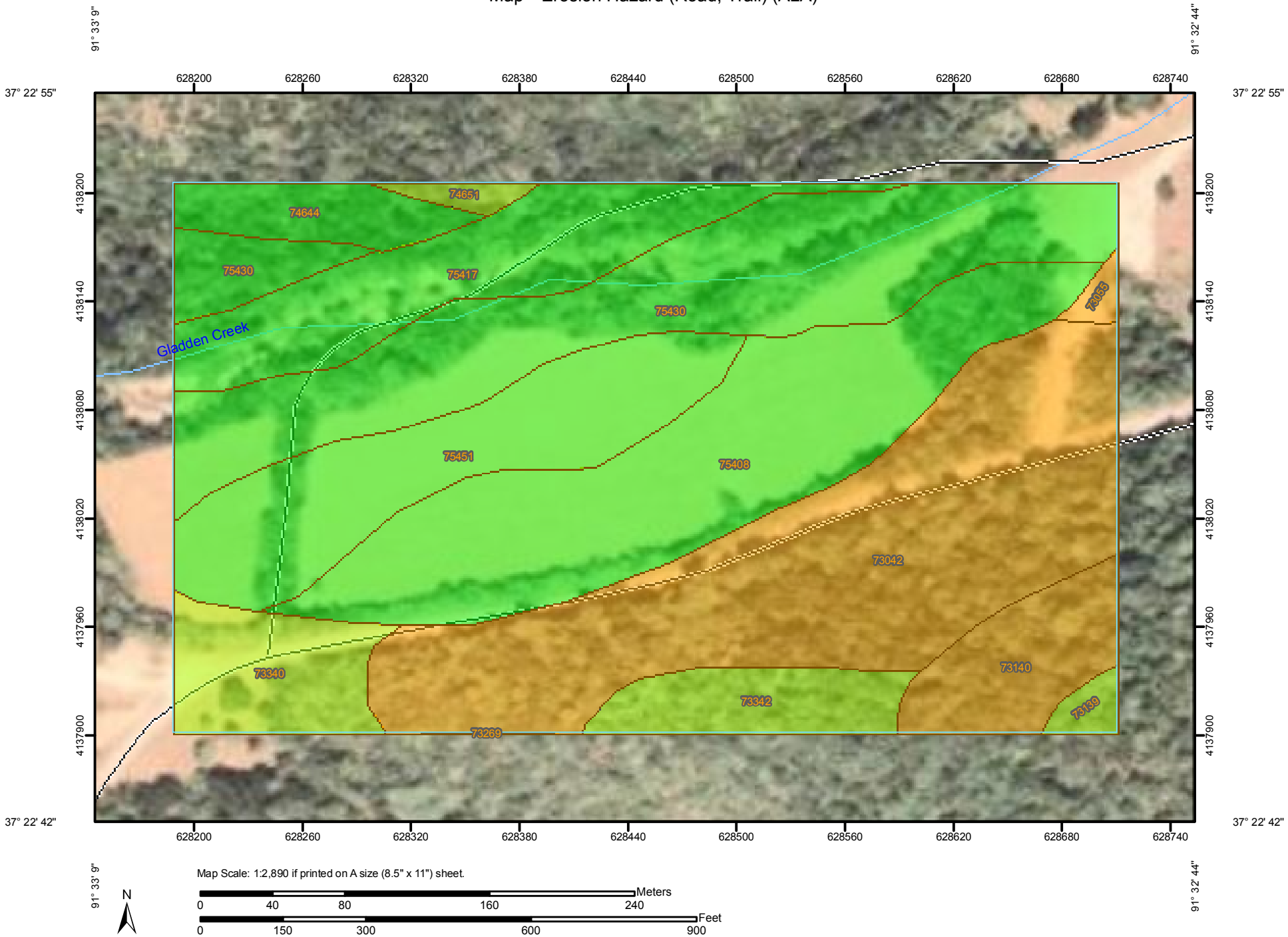
The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," or "severe." A rating of "slight" indicates that little or no erosion is likely; "moderate" indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and "severe" indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
Map—Erosion Hazard (Road, Trail) (ALA)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:2,890 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shannon County, Missouri
Survey Area Data: Version 10, Dec 27, 2011

Date(s) aerial images were photographed: 8/11/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables—Erosion Hazard (Road, Trail) (ALA)

Erosion Hazard (Road, Trail)— Summary by Map Unit — Shannon County, Missouri (MO203)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony	Severe	Niangua (60%)	Slope/erodibility (0.95)	9.7	24.6%
			Bardley (30%)	Slope/erodibility (0.95)		
73055	Alred-Rueter complex, 15 to 35 percent slopes, very stony	Severe	Alred (50%)	Slope/erodibility (0.95)	0.2	0.4%
73139	Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony	Moderate	Poynor (35%)	Slope/erodibility (0.50)	0.3	0.6%
			Clarksville (32%)	Slope/erodibility (0.50)		
73140	Clarksville-Scholten complex, 15 to 45 percent slopes, very stony	Severe	Clarksville (50%)	Slope/erodibility (0.95)	1.8	4.5%
			Scholten (30%)	Slope/erodibility (0.95)		
73269	Brussels-Gasconade-Rock outcrop complex, 35 to 90 percent slopes, very bouldery	Severe	Brussels (40%)	Slope/erodibility (0.95)	0.0	0.0%
			Gasconade (30%)	Slope/erodibility (0.95)		
73340	Rueter-Gepp complex, 8 to 15 percent slopes, stony	Moderate	Rueter (50%)	Slope/erodibility (0.50)	1.8	4.7%
			Gepp (35%)	Slope/erodibility (0.50)		
73342	Alred-Arkana complex, 8 to 15 percent slopes, rocky	Moderate	Alred (50%)	Slope/erodibility (0.50)	1.4	3.6%
			Arkana (35%)	Slope/erodibility (0.50)		
74644	Deible silt loam, 1 to 3 percent slopes	Slight	Deible (90%)		1.1	2.9%
74651	Waben gravelly silt loam, 3 to 8 percent slopes	Moderate	Waben (90%)	Slope/erodibility (0.50)	0.2	0.6%
75408	Secesh silt loam, 0 to 3 percent slopes, rarely flooded	Slight	Secesh (80%)		7.2	18.3%
			Moniteau (2%)			
75417	Relfe-Sandbur complex, 0 to 3 percent slopes, frequently flooded	Slight	Relfe (40%)		3.6	9.2%
			Sandbur (30%)			
			Farewell (2%)			
75430	Wideman fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Slight	Wideman (90%)		7.8	19.7%
75451	Gladden silt loam, 0 to 3 percent slopes, occasionally flooded	Slight	Gladden (85%)		4.3	10.8%
Totals for Area of Interest					**39.3**	**100.0%**

Erosion Hazard (Road, Trail)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Slight	23.9	60.9%
Severe	11.6	29.5%
Moderate	3.7	9.5%
Totals for Area of Interest	**39.3**	**100.0%**

Rating Options—Erosion Hazard (Road, Trail) (ALA)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Water Features

Water Features include ponding frequency, flooding frequency, and depth to water table.

Flooding Frequency Class (ALA)

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

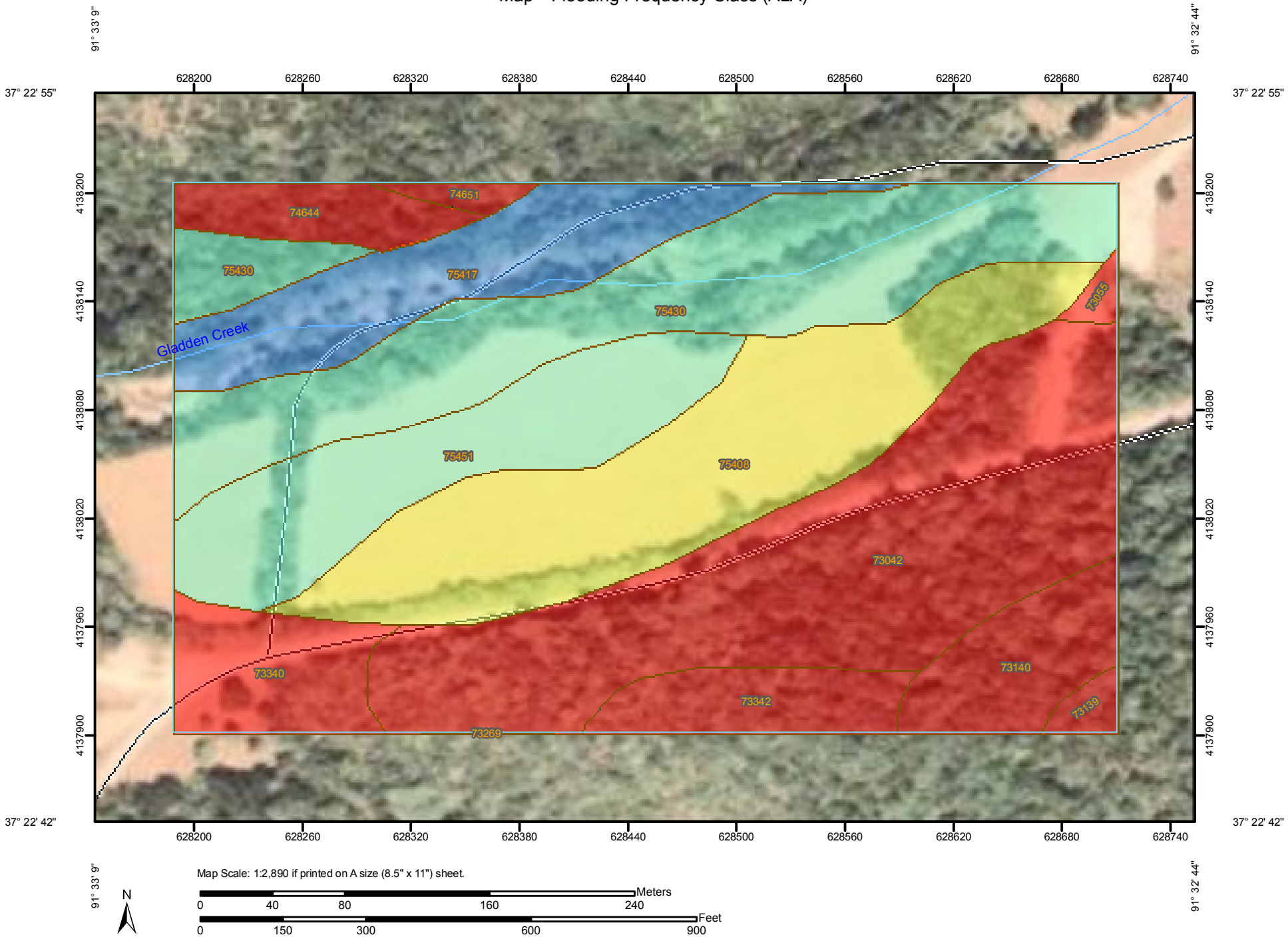
"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Custom Soil Resource Report
Map—Flooding Frequency Class (ALA)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:2,890 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Shannon County, Missouri
Survey Area Data: Version 10, Dec 27, 2011

Date(s) aerial images were photographed: 8/11/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Flooding Frequency Class (ALA)

Flooding Frequency Class— Summary by Map Unit — Shannon County, Missouri (MO203)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony	None	9.7	24.6%
73055	Alred-Rueter complex, 15 to 35 percent slopes, very stony	None	0.2	0.4%
73139	Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony	None	0.3	0.6%
73140	Clarksville-Scholten complex, 15 to 45 percent slopes, very stony	None	1.8	4.5%
73269	Brussels-Gasconade-Rock outcrop complex, 35 to 90 percent slopes, very bouldery	None	0.0	0.0%
73340	Rueter-Gepp complex, 8 to 15 percent slopes, stony	None	1.8	4.7%
73342	Alred-Arkana complex, 8 to 15 percent slopes, rocky	None	1.4	3.6%
74644	Deible silt loam, 1 to 3 percent slopes	None	1.1	2.9%
74651	Waben gravelly silt loam, 3 to 8 percent slopes	None	0.2	0.6%
75408	Secesh silt loam, 0 to 3 percent slopes, rarely flooded	Rare	7.2	18.3%
75417	Relfe-Sandbur complex, 0 to 3 percent slopes, frequently flooded	Frequent	3.6	9.2%
75430	Wideman fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Occasional	7.8	19.7%
75451	Gladden silt loam, 0 to 3 percent slopes, occasionally flooded	Occasional	4.3	10.8%
Totals for Area of Interest			**39.3**	**100.0%**

Rating Options—Flooding Frequency Class (ALA)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

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