

Glossary—Soils 2007

-A-

abiotic

Non-living factor in an environment; for example, light, water, temperature, or rocks.

Abney level

A surveying instrument designed to measure angles of elevation or depression. Measurements made with an Abney level are expressed in degrees or in percentages.

acid

Substances with a pH of less than 7.

acid rain

Rain, snow, or other forms of water that are made more acid by the waste gases that come mainly from the burning of coal and oil products. The gases (usually sulfur dioxide and oxides of nitrogen) mix with water and other materials in the air. Acid rain falls on the land and water, and can affect wildlife, plants, soil, and building materials.

acre

A unit of measurement of land equal to the area of land inside a square that is 209 feet on each side (43,560 square feet).

adapted, adaptation

The process of making adjustments to the environment. For example, plants grow only where soil types, moisture, and sunlight are balanced to the proper degree. Desert plants have adapted so they live under intense sunlight, on poor quality soils, and with a much reduced water supply.

aerate, aeration

To supply with air or oxygen; to loosen the soil to add air space to it; to supply running water with additional oxygen, as when a stream runs over falls or rapids or when wind creates waves on a lake.

aerobic

Living or occurring only in the presence of oxygen.

alkaline

Substances with a pH greater than 7.

alluvial deposits

Sedimentary deposits (like a delta) in fresh water.

alluvial fan

The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

alluvium

Material, such as sand, silt, or clay, deposited on land by streams.

alluvium, old

Material, such as sand, silt, or clay, deposited on land by streams. These deposits have been in place for a long period of time and are found on stream terraces that no longer flood.

alluvium, recent

Material, such as sand, silt, or clay, deposited on land by streams. These deposits are young in age and are found on flood plains that continue to flood and deposit new material.

amphibole/pyroxenes

Easily weathered group of minerals that provides calcium and magnesium; not as abundant as feldspars.

anaerobic

An organism, like bacteria, that lives without the presence of oxygen

anion

An ion that bears a negative charge.

arid

Dry; receives little precipitation.

aquatic

Growing, living in, or frequenting waters.

aquifer

A geological formation that is permeable; a water-bearing layer of rock or soil. An aquifer has an impervious layer of rock or soil at the top and at the bottom of a pervious layer that contains water.

autotroph

Organisms that directly use the sun's energy to make their own food.

available water capacity

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

-B-

BMP

Best Management Practices

bacteria

Single celled microorganisms that lack chlorophyll. Many bacteria break down organic matter in the air, the water, and the soil. Some bacteria are capable of causing diseases in humans, other animals, and plants.

biotic

The living components of an ecosystem (fauna and flora); a reference to the living components of the biosphere or of an ecosystem as distinguished from the non-living components.

biosphere

The part of the earth's crust (water and atmosphere) where living organisms can exist.

biota

The animal and plant life of a region or period.

biotic community

The living organisms in a given community. It includes all plant and animal life within the community. The non-living parts are considered the abiotic parts of the community.

bog

A wetland formed in a former glacial depression by the accumulation of organic matter, known as peat, and which supports mosses tolerant of acidic conditions

bulk density

The mass of dry soil per unit volume, including the air space.

carbon cycle

The circulation and recycling of carbon atoms, especially through the processes of photosynthesis, respiration, and decomposition.

cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

cation-exchange capacity (CEC)

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

chemical weathering

All chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

clay

Fine-grained soil with particles less than .002 millimeters; plastic when wet, but hardens when dry

climate

The kind of weather a place has over a period of years, based on conditions of heat and cold, moisture and dryness, clearness and cloudiness, wind and calm.

clinometer

A device used in measuring the angle of elevation from eye level to the top of a tree. This instrument is used to help calculate slope.

coastal plain

The physiographic region of eastern North Carolina that consists of ocean-deposited sediments of sand, silt, and clay. These areas of sediment are level to rolling and vary in thickness.

colluvium

Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

conservation

The use of natural resources in a way that ensures their continuing availability to future generations; the intelligent use of natural resources for

long-term benefits.

consistence, soil

The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

consumer

An organism that obtains energy by feeding on other organisms and their remains.

contour farming

Plowing along the contour lines of uneven terrain to help prevent erosion

cultivate

Tilling or working the soil for the purpose of growing crops and other desired plants.

current

Any movement of water, whether caused by tides, ocean water movements, or flowing water in rivers and stream.

-D-

decomposer

A plant, animal, or fungi, which feeds on dead material and causes its mechanical or chemical breakdown.

delta

A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

denitrification

To remove nitrogen or nitrogen-containing gases

desert

An arid habitat with limited amounts of vegetation.

drainage class (natural)

Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except rice) unless a drainage system is installed.

drainage, surface

Runoff, or surface flow of water, from an area.

drainageway

An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

drought

The lack of normal precipitation for an extended period of time. A long period with little or no rain.

dune

A low mound, ridge, bank, or hill of loose, windblown, granular material (generally sand), either bare or covered with vegetation, capable of movement from place to place but always retaining its characteristic shape.

-E-

ecosystem

All living things and their environment in an area of any size where all are linked together by energy and nutrient flow. Also, the interacting system of a biological community and its nonliving environment; the place where these interactions occur.

energy flow

The one-way passage or transfer of energy through an ecosystem according to the laws of thermodynamics.

environment

The sum of all external conditions and influences, living and nonliving, that affect the development and survival of an organism (or group of organisms); includes other plants, animals, climates, and locations.

eolian deposits

Earthy parent material accumulated through wind action; commonly refers to

sandy material in dunes or to loess in blankets on the surface.

erosion

The wearing away of the land surface by wind or water. Erosion occurs, naturally from weather or runoff, but it is often intensified by some human practices.

eutrophication

Enrichment of water due to fertilization, sewage, effluent or other waters that carry a high plant-nutrient component which speeds up the ecological aging of a body of water.

evaporation

A physical change of state in which a liquid is transformed into a vapor or gas.

evapotranspiration

The evaporation of water from the soil and the transpiration of water from the plants that live in that soil. Approximately one-quarter of a forest's annual rainfall returns to the air through evapotranspiration.

excavate

To make a cavity or hole. To hollow out.

eutrophic

A type of body of water that has high levels of nutrients.

-F-

feed lot

An enclosed area in which animals, such as hogs or cattle, are fed before being sold for meat.

feldspars

The most abundant group of minerals in the earth's crust.

field capacity

The moisture content of a soil, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

flood plain

A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the stream.

flooding

The temporary covering of the soil surface by flowing water, caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly

fluctuate

To vary; or rise and fall irregularly.

fungi

Simple plantlike organisms that lack chlorophyll. Fungi get their nutrition from living on or in other organisms (parasitically), from living with other organisms (symbiotically), or by breaking down dead organic materials (saprophytically). Examples of fungi include: mushrooms, molds, and yeast.

-G-

genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

glacial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Sediment left after glaciers recede.

glacial drift

Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

glacial outwash

Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

glacial till

Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

glacier

A flowing body of ice, formed in a region where snowfall exceeds melting.

grassland

A vegetation community in which grasses are the dominant plants.

groundwater

Water that infiltrates the soil and is stored in slowly flowing and slowly renewed underground reservoirs called aquifers.

gully

A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

-H-

heterotrophs

Organisms that must feed on other organisms in order to get the energy-rich food they need

horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

Cr horizon.—Sedimentary beds of consolidated sandstone and semiconsolidated and consolidated shale. Generally, roots can penetrate this horizon only along fracture planes.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

humus

The dark organic part of soil formed from decaying plant and animal matter; often called *topsoil*.

hydric

A descriptive term referring to plants and soils existing in flooded, saturated, or ponded areas. (For example, hydric soils.)

hydric soil

Soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period 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 in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and

specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

hydrological cycle

The process where water circulates through the ecosystem; includes precipitation, respiration, evaporation; the water cycle.

hydrophytic vegetation

Plants adapted to growing in water or very wet soil conditions.

-I-

igneous rock

Rock formed by the cooling of magma, or molten rock, from within the Earth. Igneous rocks include basalt, lava, and granite.

impoundment

A man-made body of water.

impervious

Cannot be penetrated

infiltration

The act of permeating a porous area with a liquid or gas.

infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

inorganic

Composed of matter that is not animal or vegetable; not having the organized structure of living things.

invertebrate

Animals lacking a backbone. Some examples are insects, spiders, mollusks, and crustaceans.

IPM

Integrated pest management; a pest management system that can reduce the amount of pesticides applied to crops.

iron depletions

Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion

irrigate

To supply cropland, parks, yards, and so on, with water through the use of diversions, ditches, and pipes.

-K-

kaolinite

An aluminosilicate clay mineral of the 1:1 crystal lattice group; that is consisting of single silicon tetrahedral sheets alternating with single aluminum octahedral sheets.

-L-

lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised

land capability class

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. A specially engineered site for disposing of solid waste on land, designed to confine the refuse to the smallest practical area and reduce it to the smallest practical volume.

leaching

The removal of soluble substance from soil by percolating water.

legume

Plants that bear seeds in a pod. Typically have characteristics that allow them to improve the fertility of the soil by adding nitrogen. Some examples

are: alfalfa, clover, soybeans, and peas.

loess

Windblown deposit of fine-grained silt or clay.

-M-

macronutrient

A chemical element necessary in large amounts for the growth of plants.

marginal land

Land that does not consistently produce a profitable crop because of infertility, drought, or other physical limitations such as shallow soils.

marine deposits

Sediment deposited in oceans.

marsh

A wetland without trees which often has standing water.

meandering

Curving; often used to describe rivers and streams in lowlands.

mechanical weathering

All physical changes produced in rocks or other deposits at or near the earth's surface. These changes result in the physical breakdown and disintegration of the material without affecting the material's chemical composition.

metamorphic rock

Rock formed when a pre-existing rock is exposed to high heat or pressure or when it undergoes a chemical reaction.

micronutrient

A chemical element necessary in very small amounts for the growth of plants.

microorganism

An organism microscopic in size, observable only through a microscope.

mineral

A naturally occurring inorganic crystalline material found in the Earth's crust.

montmorillonite

An aluminosilicate clay mineral in the smectite group with a 2:1 expanding crystal lattice, with two silicon tetrahedral sheets enclosing an aluminum

octahedral sheet. Considerable expansion may be caused by water moving between silica sheets of contiguous layers.

mottled

Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

mulching

To add materials to soil to protect the soil from cold, to reduce evaporation, to control weeds, or to enrich the soil. Common materials for mulching include: sawdust, bark, and leaves.

muck

Dark, finely divided, well decomposed organic soil material.

Munsell soil color chart

The soil color chart commonly used by soil scientists to determine soil color. The chart designates color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

-N-

nitrogen-fixation

Conversion of elemental nitrogen from the atmosphere to organic combinations or to forms readily usable in biological processes. Nitrogen-fixation is normally carried out by bacteria living symbiotically in legumes, or by free-living soil bacteria.

non-point-source pollution

Pollution that enters water through run-off from farmland, forestland, and urban areas. It can not be determined exactly where this pollution comes from.

nutrients

Chemicals required for plants and animals to grow and exist; a chemical compound required for the life of an organism.

-O-

oligotrophic

Lake type used to describe bodies of water characterized by low amounts of nutrients in proportion to their total volume of water.

organic

Referring to or derived from living organisms; in chemistry, any compound containing carbon.

organic matter

Chemical compounds of carbon combined with other chemical elements and generally manufactured in the life processes of plant and animals. Most organic compounds are a source of food for bacteria and are usually combustible.

organism

Any form of life (composed of mutually dependent parts) that maintains various vital processes.

-P-**parent material**

The unconsolidated organic and mineral material in which soil forms.

peat

Moist, semi-decayed, organic matter.

ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

pedon

A three-dimensional soil body depicting the range of characteristics of a given soil.

percolation

The downward movement of water in soil; leaching.

permeability

The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed

as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable - less than 0.0015 inch

Very slow - 0.0015 to 0.06 inch

Slow - 0.06 to 0.2 inch

Moderately slow - 0.2 to 0.6 inch

Moderate - 0.6 inch to 2.0 inches

Moderately rapid - 2.0 to 6.0 inches

Rapid - 6.0 to 20 inches

Very rapid - more than 20 inches

pH

The hydrogen-ion activity used in expressing both acidity and alkalinity on a scale whose values range from 0-14, with 7 representing neutrality. Numbers less than 7 represent increasing acidity; numbers greater than 7, represent increasing alkalinity. Also, pH describes the condition represented by such a number.

phosphate

A chemical compound that aids root growth and is essential in energy transfer. It is commonly incorporated into beds as triple super phosphate (TSP) at time of planting.

photosynthesis

Complex process that takes place in cells of green plants. Radiant energy from the sun is used to combine carbon dioxide and water to produce oxygen and carbohydrates (such as glucose) and other nutrient molecules.

plasticity

The degree to which "puddled" or reworked soil can be permanently deformed without rupturing.

point source pollution

Pollution that comes from a specific place such as a drain or pipes.

pollution

Harmful substances deposited in the air, water, or land leading to a state of dirtiness, impurity, or unhealthiness.

ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

pore spaces, pores

The area of the soil through which water and air move. The space between soil particles. Macropores are large pores which help with the transmission of water and air in the soil. Micropores are microscopic in size.

porous

Admitting the passage of gas or liquids through pores.

precipitation

Rain, snow, and other forms of water that fall to earth.

prime farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that governments at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland. The soils in a survey area that are considered prime farmland are listed in the prime farmland table.

producers

Organisms that synthesize organic compounds from inorganic substances by way of *photosynthesis* (green plants) or *chemosynthesis* (anaerobic bacteria).

-R-

reaction, soil

A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5

Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly	9.1 and higher

redoximorphic concentrations

Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

redoximorphic depletions

Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

redoximorphic features

Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

residuum

Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

respiration

An energy-yielding oxidation process that goes on in living plants and animals; an exchange of gasses.

rill

A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

riparian

On or near the bank of water areas. The land area and plants that are influenced by the adjacent water.

riparian buffer

An area of trees and shrubs located adjacent to streams, lakes, ponds, and

wetlands.

rock

A complex mineral aggregate.

root restrictive layer

Any layer found in the soil which restricts the growth of plant roots. The most common root restrictive layer is bedrock.

rotation

A planned multi-year succession of crops designed to maximize productivity and minimize erosion and plant diseases.

row crops

Agricultural crops, such as corn and soybeans, that are grown in rows.

runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

rupture resistance

A measure of the strength of soil to withstand an applied stress.

-S-

sand

The largest size soil particle composed of individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

sediment

The accumulation of soil particles in bodies of water such as rivers and lakes.

sedimentary rock

Rock that is formed by the accumulation of sediments that are compacted and solidified by heat, pressure, or chemical reactions.

sedimentation

The deposition or accumulation of sediment.

sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

silt

Soil particles composed of individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

sloughs

A swampy place or marshy inlet.

soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

soil compaction

The compression of soil to a smaller volume.

soil profile

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. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Soil Taxonomy

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The table "Classification of the Soils" shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horization, plus *udalf*, the suborder of the Alfisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

soil survey

Soil surveys include general information about the survey area, descriptions of the detailed soil map units and soil series in the area, and a description of how the soils formed. The survey also describes the use and management of the soils and the major soil properties. In addition, general and detailed soil maps are provided to let the user know about the type and location of soils in the survey area.

stickiness

The capacity of soil to adhere to other objects. Stickiness is estimated at the moisture content that displays the greatest adherence when pressed between thumb and forefinger.

stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

swamp

A wetland dominated by trees.

-T-

terrace

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

tillage

Cultivation of land.

tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

-U-

upland

Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

-V-

valley

Elongated lowland between mountains, hills, or other upland areas that often has a river or stream running through it.

vegetation

The mass of plants that cover a given area. (*Flora* sometimes used—incorrectly—as a synonym for vegetation is actually a list of the species of plants that compose the vegetation.)

-W-

watershed

The land area where all rain drains into a body of water—delivering both runoff water and sediment to a major river or stream and its tributaries.

water table

A zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick, persists in the soil for more than a few weeks, and is within 6 feet of the surface. Indicated in the "Water Features" table of a soil survey are the depth to the seasonal high water table, the kind of water table, and the months of the year when the water table usually is highest.

An **apparent** water table is indicated by the level at which water stands in a freshly dug, unlined borehole after adequate time for adjustments in the surrounding soil.

A **perched** water table is one that is above an unsaturated zone in the soil. The basis for determining that a water table is perched may be general knowledge of the area. The water table is proven to be perched if the water level in a borehole is observed to fall when the borehole is extended.

wetland

An area that is regularly wet or flooded where the water table stands at or above the land surface for a least part of the year. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology

wilting point

The moisture content of soil, on an oven dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

