EXHIBIT NO. 5
DATE 3·24·15
BILL NO. SB 176

Testimony supporting **SB 176**, designating the Scobey Series, as Montana's Official State Soil. Offered at the House Agriculture Committee hearing. State Capital, Helena, March 24, 2015.

Mr. Chairman, members of the Committee,

I am Gerald Nielsen (N-I-E-L-S-E-N) from Bozeman, retired from MSU after teaching Soil Science for 45 years, and now co-owner of Bitterroot Turf Farm near Corvallis.

State symbols call attention to state treasures. Twenty-one states have designated a soil as a state symbol. I hope Montana will too.

Let me introduce to you, the Scobey Soil Series, "the star" of this hearing, represented here as a vertical slice, a monolith, taken from a Scobey clay loam at the Ag. Research Center near Conrad. Scobey is one of some thirteen hundred soils in Montana; an old-timer, first named and mapped in the 1920s. Another Scobey monolith, like this one, was seen by millions, first at the Smithsonian in Washington D.C., now traveling to museums in other states. Another monolith traveled to the International Soil Museum in the Netherlands. This monolith resides at MSU with 30 others representing the variety of Montana's soil treasures.

Scobey soil has a scientific name, like many state symbols. The Grizzly Bear is *Ursus arctos horribilis*. Scobey is a fine, smectitic, frigid, Aridic Argiustoll. See **Section 1**, near the end of SB176. (This book describes how Scobey, and soils worldwide, are classified.)

Reading this long name backward, right to left, the "-oll" indicates the taxonomic order called Mollisols, one of 12 soil orders encompassing all soils of the world. Scobey is a Mollisol, with

deep, dark-colored, fertile topsoil, enriched by prairie grass roots for thousands of year, home to more microbes and creatures in a square yard than there are people on earth.

The "-ust" means Scobey dries out during the growing season. "Argi-" tells us that water has moved clay downward, accumulating in the subsoil. "Aridic" means, dryer than typical Agriustolls. Scobey's average temperature is "frigid", less than 47 F. Scobey's dominant clay type is smectite (like bentonite), great for holding water in a drought. "Fine" means 35 to 60% clay in the subsoil.

What a marvelous, fascinating soil!

As **Official State Soil**, Scobey would call attention to Montana's treasured soil resources, to be noted on publications, maps and web sites. Mr. Chairman, with your permission, I would like to provide the members with an example state soil photograph and web site presentation. These are starting points, for educating students -- for educating all of us. This book, "SOIL - the inside scoop", introduces children to soil topics that comprise multiple soil science courses at Land Grant Universities. The students and teachers here have copies. We want the members to have copies too, as an educational starting point, for other students, teachers or themselves.

I hope that we will one day see Scobey, as Montana's Official State Soil, displayed as a beautiful photograph or monolith in this building; with a forest soil from Yaak and a range soil from Alzada? Please support SB176.

SCOBEY -- MONTANA STATE SOIL

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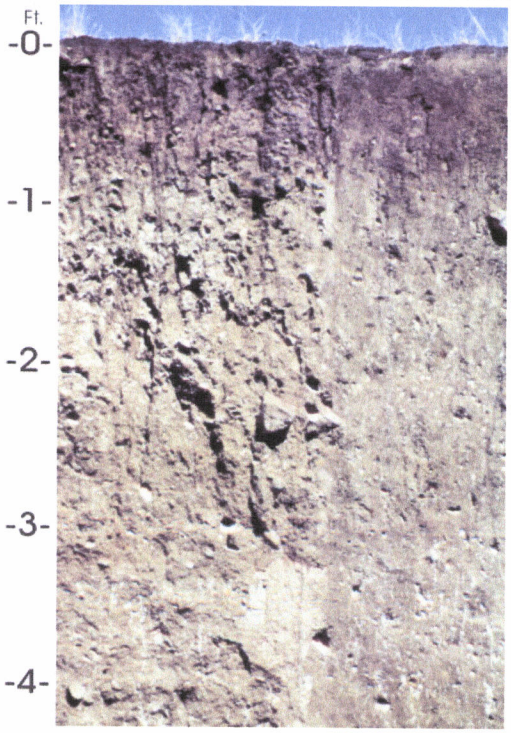

Scobey Soil Profile
Surface layer: very dark grayish brown clay loam
Subsurface layer: dark brown clay
Subsoil: dark grayish brown clay loam

The Scobey series consists of very deep, well drained soils on till plains, hills, and moraines in the north-central part of Montana. These soils occur on more than 700,000 acres. They are among the most productive soils in Montana's Golden Triangle, an area known for its ideal climatic conditions for growing wheat of exceptionally high quality. The three points of the Golden Triangle are Havre, Conrad, and Great Falls. The main crops grown on Scobey soils are spring and winter varieties of nonirrigated wheat.

These soils formed in glacial till and under prairie vegetation. The average annual precipitation is about 12 inches. The average annual air temperature is about 43 degrees F. The frost-free period is about 115 days.

These soils are named for the town of Scobey, in northeast Montana. The series was established in 1928.

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USDA NRCS
Natural Resources Conservation Service

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Why have State Symbols ?

State symbols represent natural treasures of states.

Montana's Official State Symbols include ....the Bitterroot flower, Western Meadowlark, Bluebunch Wheatgrass, Ponderosa Pine, Grizzly Bear, etc.

Symbols start conversations, lead to education, focus attention, bestow honor.

Why a State Soil ?

Soil is the most valuable treasure of the "Treasure State", but no soil has official state recognition.

Soils support life for plants, animals, people and most of Montana's official state symbols.

Soils support forests, range, crops, parks, tourism, buildings and roads.

Soils support Agriculture, Montana's largest industry, valued at over $4 billion per year.

Soils clean up water and air.

Calls attention to some 13 hundred soils named and mapped in Montana.

Why Scobey soils?

Scobey is unique to Montana, named after town of Scobey, and shown on soil maps as early as 1929.

Scobey occurs mostly in Montana's Golden Triangle and Hi-line areas near Conrad, Great Falls, Havre.

Scobey produces world-famous high quality wheat and other crops without irrigation.

Scobey holds a lot of soil water and uses it more efficiently than most soils in other states.

Scobey is used for teaching and research at universities, and public schools as early as 1985.

Scobey is the best known soil in the state; seen by millions. e.g. World Soil Museum, Smithsonian soil monolith exhibit in Washington DC, traveling to MN, CA, NE, WA, NC and potentially to MT.

Why now?

2015 is declared the International Year of the Soil by the UN General Assembly.

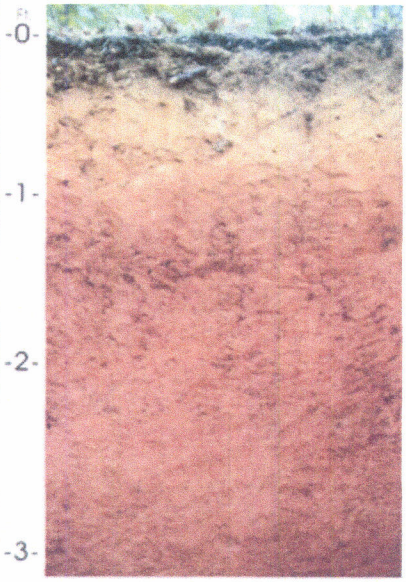
20 web pages list Year of the Soil actions in the USA and in countries that buy what Montana soils produce.

Now is the time to call attention to the role of Montana soils in feeding 2 billion more people in 35 years.

Twenty-one states already have State Soils as official state symbols. Why not Montana?

Who supports Scobey as Official State Soil?

Fifty-three Bozeman Longfellow Elementary School 4th graders, thirty-five legislators co-sponsor Senate SB 176, a majority of MT State Senators, U.S. Senators Daines and Tester, farmers, ranchers and business people (e.g. Dean Folkvord, farmer and CEO of Wheat Montana and Richard Moe, rancher and owner of Cream of the West), the Montana Association of Conservation Districts, Montana Salinity Association, Montana Grain Growers Association, Montana Agricultural Business Association, and a broad spectrum of citizens, including 350 documented, many with statements of support, on Change.org

State	State soil	Image	Year adopted as official state symbol (if any)
Alabama	Bama		EXHIBIT NO. 5 DATE 3.24.15 BILL NO. SB176 1997[2]
Alaska	Tanana		
Arizona	Casa Grande		
Arkansas	Stuttgart		1997
California	San Joaquin		1997
Colorado	Seitz		
Connecticut	Windsor		*proposed*[3]
Delaware	Greenwich		2000
Florida	Myakka		1989

Montana State Legislature

Exhibit: 5

This exhibit is a booklet entitled:
Soil! Get the inside Scoop
By David L Lindbo & others
It cannot be scanned in its entirety, the front cover, table of context and 5 other pages have been scanned to aid you in your research. The original exhibit is on file at the Montana Historical Society and may be viewed there.

Exhibit: 2

Montana Historical Society Archives
225 N. Roberts
Helena MT 59620-1201
2015 Legislative Scanner Susie Hamilton

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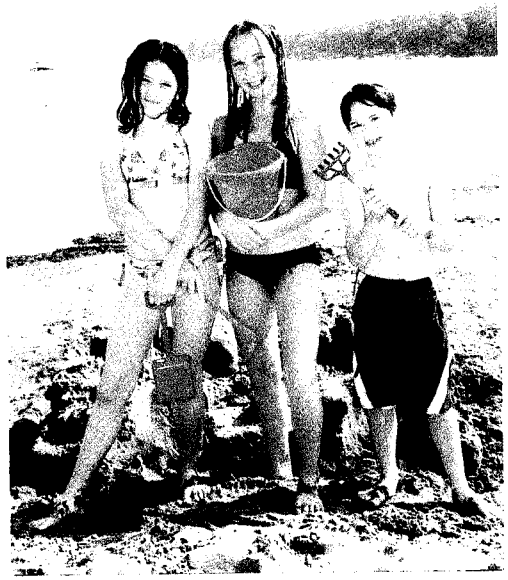
SB 176

SOIL!

Get the Inside Scoop

David L. Lindbo
and others

Did you ever try to dig to China?

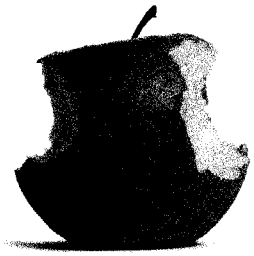


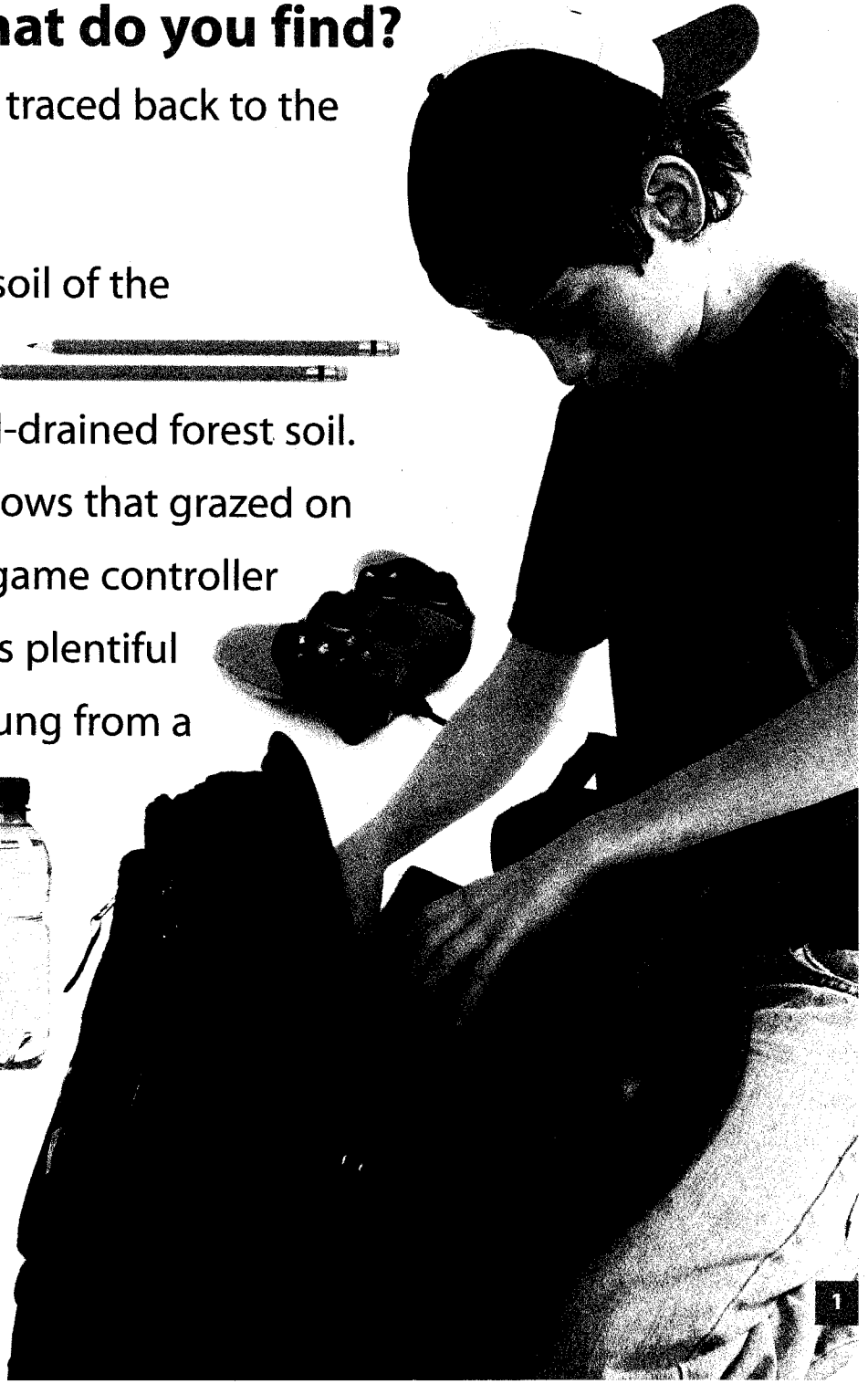
Well, then you scooped up something amazing—SOIL!

When you look in your backpack, what do you find?

Chances are that almost everything in there can be traced back to the Earth—the ***soil***, to be more precise.

Your t-shirt is made of cotton that grew in soil of the Southern U.S. Your wooden pencils are made from cedar trees harvested from well-drained forest soil. Your soccer ball is leather that came from cows that grazed on fertile prairies. The computer chip in your game controller contains silicon processed from our planet's plentiful sands. And that half-eaten apple, it once hung from a tree with roots stretching deep into the soil. Even the water you drank with lunch was purified as it passed through many layers of soil.





Soil is so much more than dirt. It supports us, and without it we could not survive. Soil is life.

Dig These Words

Amino acids – Molecules that join together to form proteins, the building blocks of all organisms.

Anaerobic – Without oxygen as a part of the environment. The opposite of aerobic.

Antibiotic – A chemical that weakens or stops bacteria, fungi, and other microorganisms from growing.

Archaeologist – A scientist who studies ancient human cultures.

Arid – Dry, like a desert.

Bedrock – Mass of solid rock beneath the soil. Can be parent material if it is close enough to the surface to weather into soil.

Blocky – A soil structure. Soil particles are arranged into shapes that resemble small cubes with sharp or rounded edges.

Clay – The smallest-sized soil particles. Often have plate-like shapes. Feels sticky when wet. Also refers to a soil texture that consists of at least 40% clay particles.

CLORPT – The five factors that influence what type of soil forms: **c**limate, **o**rganisms, **r**elief (landscape), **p**arent material, and **t**ime.

Columnar – A soil structure. Soil particles are arranged into tall vertical shapes or columns often with rounded tops.

Compost – The remains of plants and animals after they have decomposed. Can be used to fertilize soil and to improve its structure and ability to hold water.

Compounds – The combination of two or more elements. For example, hydrogen and oxygen combine to make water.

Decompose (Decomposition) – To break down a compound into simpler compounds. Often accomplished with the help of micro-organisms.

Developed soil – A soil that has had a long time to form, such as most tropical soils. A mature soil.

Deficiency – Lacking in something important. A deficiency of nutrients in a plant, for example, can stunt its growth.

Dormant – A state in which a plant or animal is not growing.

Ecologist – A scientist who studies interactions between organisms and their environment.

Eluviated horizon (E horizon) – A horizon from which minerals, clay, and/or organic matter have been leached.

Enzyme – A protein that increases the rate of chemical reactions in an organism's cells.

Erode (Erosion) – To wear away, or remove, rock or soil particles by water, ice, and/or gravity.

Estuary – A semi-enclosed body of water with a source of fresh water and an outlet to the ocean.

Fertility – The ability of a soil to supply essential nutrients to plants.

Fertilizer – A substance added to soil that contains plant nutrients such as nitrogen, phosphorus, and potassium.

Fungus – A kingdom of organisms distinct from animals and plants. Most fungi get their energy from decomposing plants and animals.

Granular – A soil structure. Soil particles are arranged into shapes that resemble granola. Has lots of pores.

Groundwater – Water that collects underground in the pore spaces of soil and rock. An important source of drinking water.

Horizon – A layer of soil with properties that differ from the layers above or below it.

Humus – Organic matter such as highly decomposed leaves.

Leaching – The removal of minerals and nutrients from a soil or a horizon as water passes through it.

Loam – A soil texture with moderate amounts of sand, silt, and clay, sometimes in nearly equal proportions. Good texture for farming and gardening.

Macronutrients – Nutrients needed by organisms in relatively large quantities.

Massive – A soil that has no structure. Soil particles are completely stuck together.

Microbes – Microscopic organisms, such as bacteria and fungi. Microbes represent the most abundant soil organisms.

Microbiologist – A scientist who studies microscopic organisms, or microbes.

Minerals – The inorganic particles in soils that weather from rocks.

Mottles (Mottling) – Spots or blotches of color(s) in a soil that differ from that soil's dominant color.

Nitrogen (N) – Macronutrient essential to living things like plant growth and building proteins. Often added to agricultural and garden soils.

Nutrients – Elements or compounds that nourish organisms. Essential for growth and reproduction.

Organic matter – Material derived from the decay of plants and animals. Always contains compounds of carbon and hydrogen.

Organisms – Living things such as bacteria, fungi, plants, or animals.

Parent material – The source from which a soil formed. Can be bedrock or materials carried and deposited by wind, water, glaciers, and/or gravity. May also be the C horizon in a soil profle.

Peat – Partially decayed organic matter that accumulates in environments that stay wet.

Ped – The structural unit formed when soil particles (sand, silt, and clay) bind together.

Pedologist – A scientist who studies soils.

Perennials – Plants that live for more than two years as opposed to annuals that grow each year from seeds or biennials that live for only two years.

By David L. Lindbo, Wendy Greenberg, Laurel Hartley, John Havlin, Thomas E. Loynachan, Monday Mbila, Bianca Mobieus, Emily Stockman, Janis Boettinger, Mary E. Collins, John Omueti, Dennis Osborne, Deborah A. Kozlowski, Chien-Lu Ping, Ray Weil

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Permafrost – A soil horizon, or layer, that remains frozen year round.

Phosphorus (P) – Macronutrient essential to all living things like flowers, fruits, seeds in plants and the nervous system in animals. Often added to agricultural and garden soils.

Photosynthesis – The process by which plants, some bacteria, and some algae use sunlight to convert carbon dioxide and water into food and oxygen.

Platy – A soil structure. Soil particles are arranged into shapes that resemble flat plates.

Pores – The space between soil and rock particles, which can be filled with water or air. A **porous** soil has lots of pores.

Potassium (K) – Macronutrient essential to all living things like water uptake and pest resistance in plants; muscles and blood circulation in animals. Often added to agricultural and garden soils.

Prismatic – A soil structure. Soil particles are arranged into shapes that resemble columns.

Productive – A term used to describe a soil that has the capacity to grow an abundance of crops.

Relief – The shape of the land surface created by features such as hills and valleys.

Runoff – Water from precipitation or irrigation that does not soak into the soil but flows off the land and reaches streams and rivers.

Salinization – The build-up of salts in soil. Often occurs in arid environments.

Sand – The largest-sized soil particles. Sand feels gritty. Also refers to a soil texture that consists of at least 85% sand particles.

Sediment – Any particle of soil or rock that has been deposited by water, wind, glaciers, or gravity.

Sewage – Waste that goes down a drain (such as those in bathrooms, kitchens, and laundry rooms) to a treatment plant or septic system.

Silt – Soil particles in between sand and clay in size. Silt feels like flour (smooth and velvety). Also refers to a soil texture that consists of at least 80% silt particles.

Single-grained – Soil structure where the soil particles are not bound to each other in any way, such as beach sand.

Slope – A landscape, or surface, that is tilted or inclined.

Sludge – Semi-solid material left behind after sewage has been processed in a treatment plant. May be used as a fertilizer in some instances.

Sod – Grass and the soil beneath it, held together by roots. Can be cut into blocks and used as a building material.

Soil – A mixture of minerals, organic matter, water, and air, which forms on the land surface. Can support the growth of plants.

Soil profile – A section of the soil that has been cut vertically to expose all its horizons, or layers.

Soil structure – The arrangement of soil particles into clusters, called peds, of various shapes that resemble balls, blocks, columns, or plates.

Soil texture – The relative proportions of sand, silt, and clay particles.

Subsoil (B horizon) – The soil horizon rich in minerals that eluviated, or leached down, from the horizons above it. Not present in all soils.

Tissue – A group of cells in an organism that work together, such as muscles in an animal or the outer surface of leaves in a plant.

Topsoil (A horizon) – Mostly weathered minerals from parent material with a little organic matter added. The soil that formed on the land surface.

Transform – To change from one thing into another or from one state into another, like a liquid into a gas.

Tropical – The area of land and ocean that lies between 23.5° north and south of the equator.

Tundra – An area in cold regions, such as in the arctic or on mountains, where the growing season is very short.

Uptake – The ability of a plant to absorb water and nutrients.

Weather (Weathering) – To break down rocks and minerals at or near Earth's surface into smaller particles and soil.

Wetland – An area of land where the soil is saturated with water, such as a marsh, swamp, or bog.

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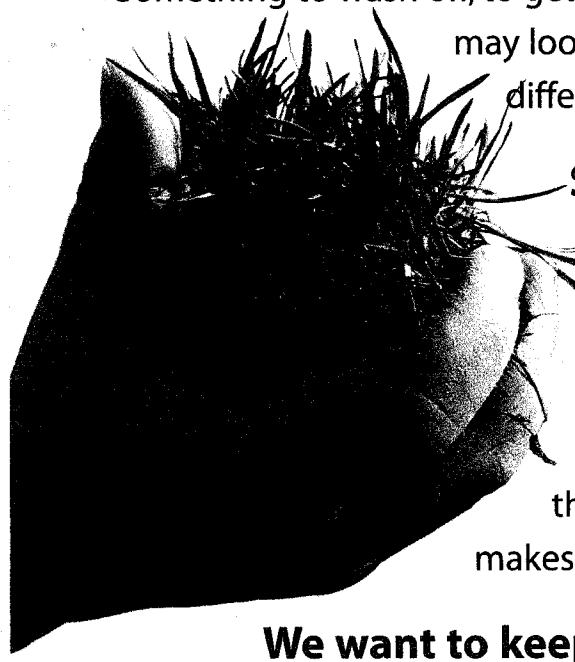
Heaven is under our feet as well as over our heads.

Henry David Thoreau

Soil is not dirt

Dirt is what gets on our clothes or under our fingernails. Something to wash off, to get rid of. At a glance, dirt and soil may look the same, but there is a big difference.



So, what on Earth is soil?

It is a complex mix of ingredients: ***minerals***, air, water, and ***organic matter***—countless organisms and the decaying remains of once-living things. Soil is made of life. Soil makes life. And soil is life.

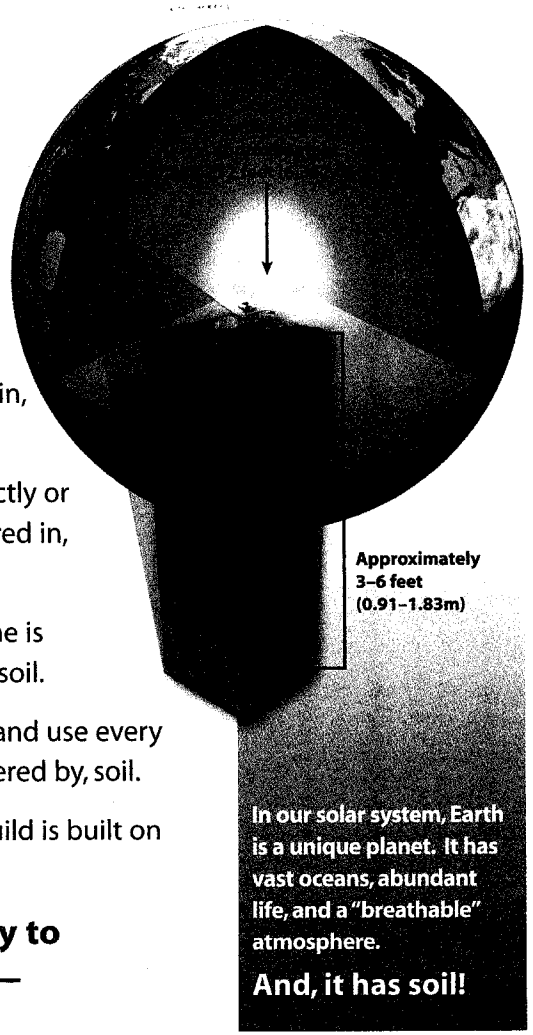
We want to keep and protect soil.
Dirt is something we want to get rid of.

THE SKIN OF THE EARTH

Soil is the thin outermost layer of Earth's crust. Like our own skin, we can't live without soil. Why?

- Most of our food comes directly or indirectly from plants anchored in, and nourished by, soil.
- Part of the oxygen we breathe is produced by plants living in soil.
- Much of the water we drink and use every day soaked into, and was filtered by, soil.
- And nearly everything we build is built on soil, and often with it.

Like our skin, it is easy to take soil for granted—*and* to damage it.



In our solar system, Earth is a unique planet. It has vast oceans, abundant life, and a "breathable" atmosphere.

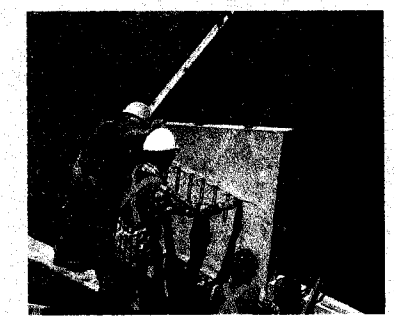
And, it has soil!

Soil means different things depending on who you are.

FARMER
It is where crops grow.

"Soil is at the base of everything we do: our food, our clothes, even fuel for our cars. It's my job to use the soil in a sustainable way to provide all these things."

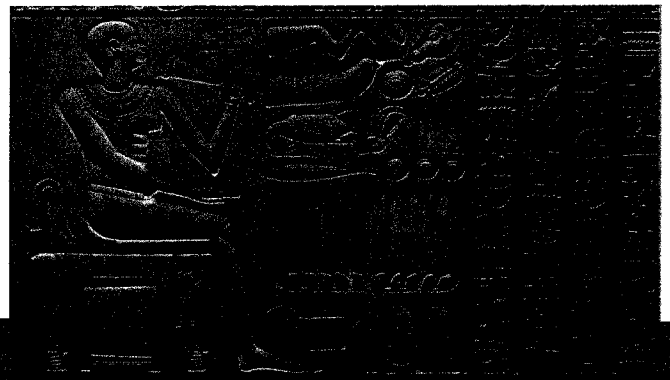
ENGINEER
It is a foundation to build on.



"Soils are the backbone of the world we live in. But they range in strength from being able to support a skyscraper to not being able to support your own weight."

ARCHAEOLOGIST
It holds clues of past cultures.

"As an archaeology student, the first thing I learned to do was hold a trowel to dig in the soil. If you don't get that right you can never be an archaeologist."

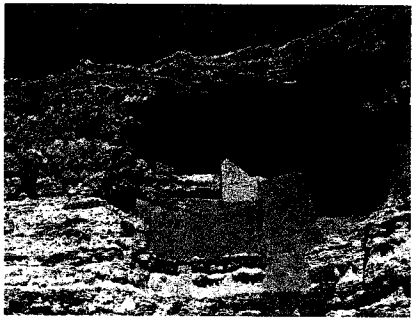


Some of the first written words were recorded on clay tablets, such as this ancient Egyptian one.

Soil was so important to early civilizations that people worshiped soil gods and goddesses. Geb, here, was the Egyptian god of the Earth, always shown having a green, leaf-covered body.

We can even make links between proper names and the soil: "Adam" comes from the Hebrew word *adama*, which means soil, or earth.

For thousands of years people have shaped clay into urns and other vessels. Some, like this ancient Greek pitcher, were elaborately decorated with paints, sometimes made from soil.



For generations people have used soil to build their houses. Native Americans in the American Southwest dried the desert soil into adobe bricks.

Settlers on the Midwestern prairies cut ***sod*** into bricks to build their homes.

People of the Navajo Nation built earthen houses called hogans.

SOIL: WE'RE ROOTED IN IT

Did you know that "earth" and "soil" are some of the earliest words ever written? These words tell us a lot about the importance of soil to people. The Romans called Earth *solium*, from which we get the English word "soil." To the Greeks, soil, or Earth, was *pedon*, which is why we call some soil scientists "***pedologists***."

ECOLOGIST

It supports the web of life.

"Soil connects all life and all ecosystems. Even in the harshest ecosystems the soil is a refuge for life."

POTTER

It provides clay to work with.

"I love seeing the clay transformed into useful ceramic things, and the sand and minerals from the soil fired into shining glazes."

SOIL SCIENTIST

It's all of these things, but most of all . . .soil is life.

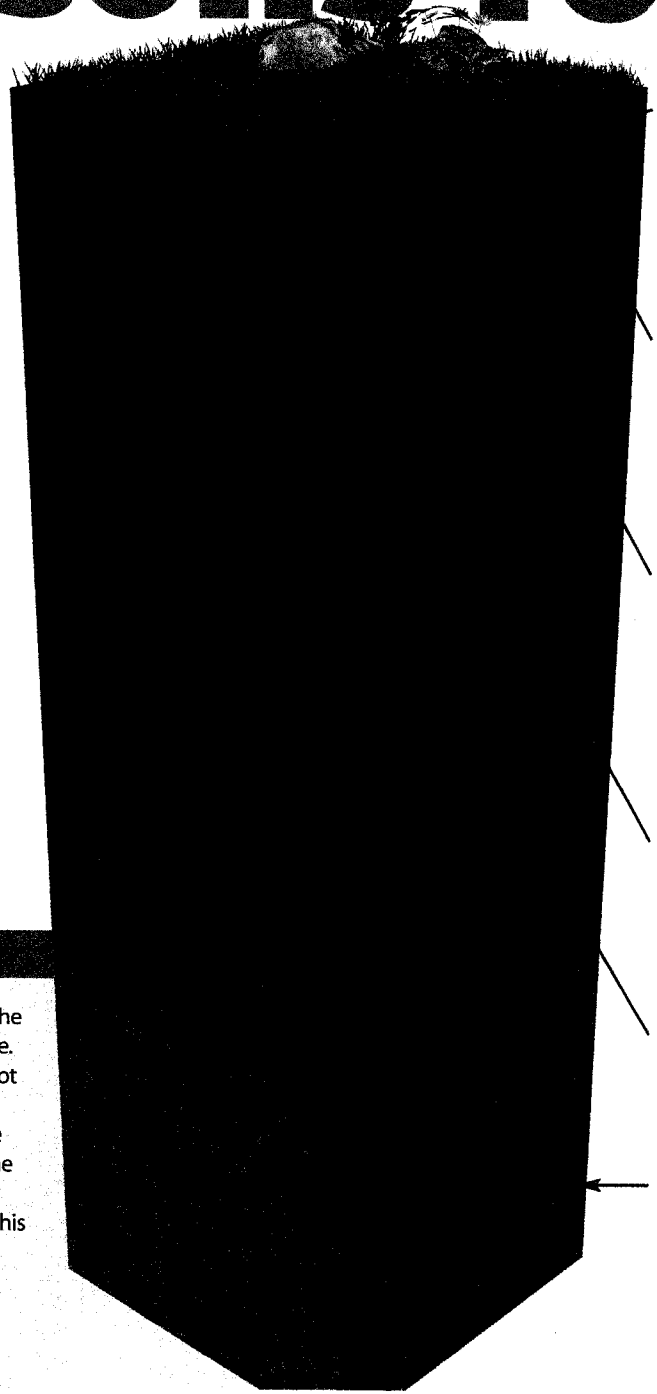
"There is more to soil than meets the foot!"

How do soils form?

Break it down . . . Build it up.

Dig down deep into any soil, and you'll see that it is made of layers, or ***horizons***. Put the horizons together, and they form a ***soil profile***. Like a biography, each profile tells a story about the life of a soil.

Every soil formed from ***parent material*** a deposit at the Earth's surface. The material could have been ***bedrock*** that ***weathered*** in place or smaller materials carried by flooding rivers, moving glaciers, or blowing winds. Over time, sun, water, wind, ice—and living creatures—help ***transform***, or change, the parent material into soil.



O (humus or organic)
Mostly organic matter such as ***decomposing*** leaves. The **O** horizon is thin in some soils, thick in others, and missing in yet others.

A (topsoil)
Mostly minerals from parent material with a little organic matter added. A good material for plants and other organisms. You can find lots of roots here.

E (eluviated horizon)
Leached of clay, minerals, and organic matter, which makes the **E** horizon sandier and lighter in color than the **A** horizon above and the **B** horizon below it. Often found in some older soils and forest soils.

B (subsoil)
Rich in minerals that ***leached*** (moved down) from the **A** or **E** horizons and accumulated here. Not present in all soils.

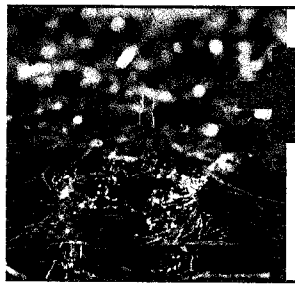
C (parent material)
The deposit at Earth's surface from which the soil developed.

R (bedrock)
A mass of rock that forms the parent material for some soils if the bedrock is close enough to the surface to weather.

Each horizon in a soil profile is different from the one above it and the one below it. But learning horizons is as easy as learning your ABCs—just in a slightly different order. From top to bottom, the horizons are **O, A, E, B, C,** and **R.**

Try this memory aid: Old Aunt Ethel Bakes Cookies Regularly. Or you can invent your own.

A vertical cut through the soil is called a soil profile. Every soil profile may not have all of the horizons shown here, nor are the boundaries between the layers always as sharply defined as the ones in this illustration.

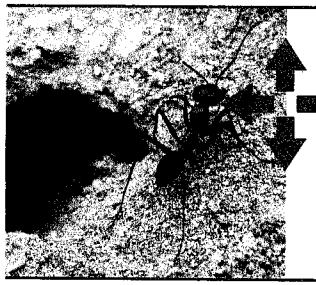


ADDITIONS

Rain adds water. Dust adds minerals. Animal wastes add organic matter and *nutrients*. Humans add *fertilizers*.

LOSSES

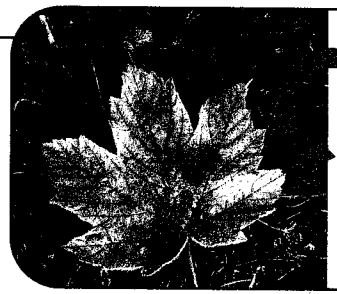
Water evaporates into the air. Nutrients are taken up by plants. Soil particles wash away in a storm. Organic matter may decompose into carbon dioxide. Minerals and nutrients leach into *groundwater*.



TRANSLOCATIONS

(MOVEMENT WITHIN THE SOIL)

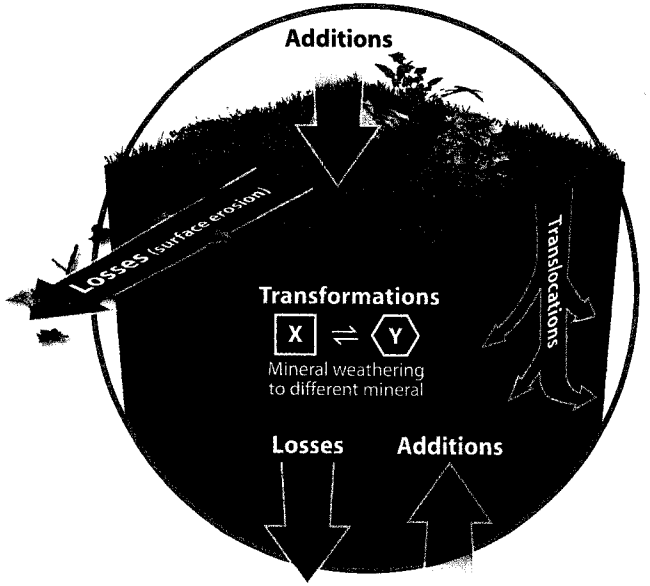
Gravity pulls water down from top to bottom. Evaporating water draws minerals up from bottom to top. Organisms carry materials every which way!



TRANSFORMATIONS

(ONE COMPONENT CHANGES INTO ANOTHER)

Dead leaves decompose into *humus*. Hard rock weathers into soft *clay*. Oxygen reacts with iron, "rusting" the soil to a reddish color.

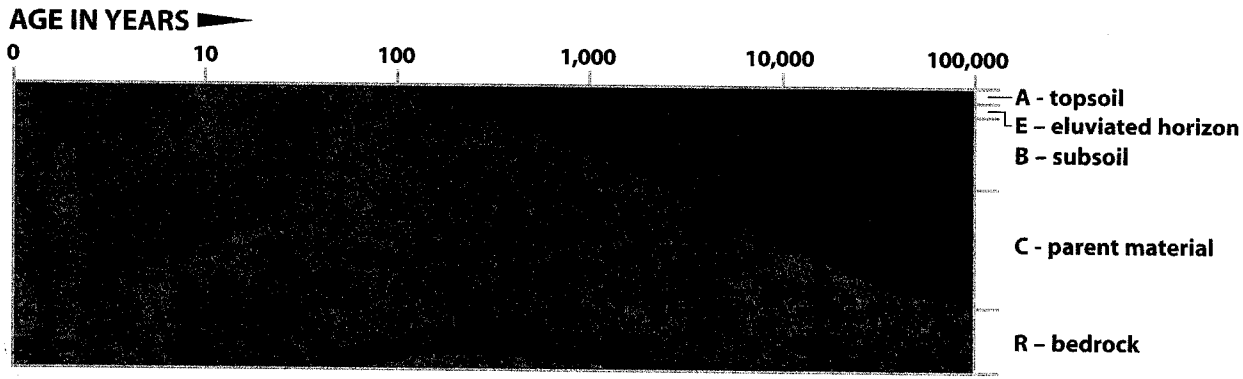


LOOKS CHANGE WITH AGE

As a soil ages, it gradually starts to look different from its parent material. That's because soil is dynamic. Its components—minerals, water, air, organic matter, and ***organisms***—constantly change. Some components are added. Some are lost. Some move from place to place within the soil. And some components are totally changed, or transformed.

A Snapshot in Time Soil horizons take hundreds to thousands of years to form.

A soil profile is like a snapshot, capturing what the soil looks like now. In the past, it looked different and will look different in the future.



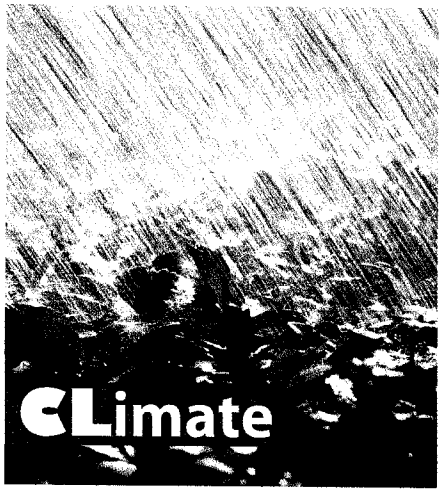
>>Inside Scoop

The word "human" is probably related to the word "humus," Latin for "earth" or "ground." Soil scientists use the word "humus" to mean a soil's decomposed organic matter.

CLORPT for short

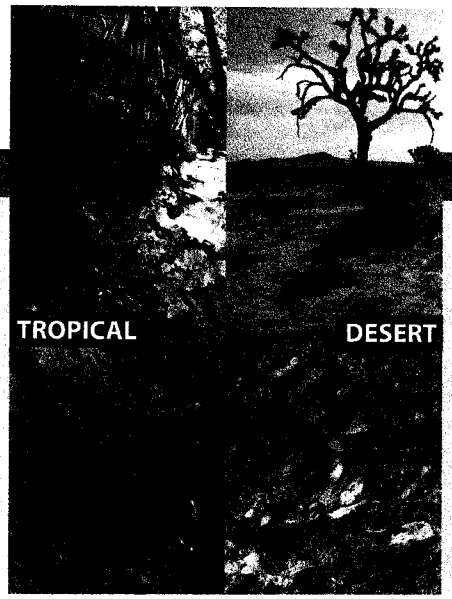
Soils differ from one part of the world to another, even from one part of a backyard to another.

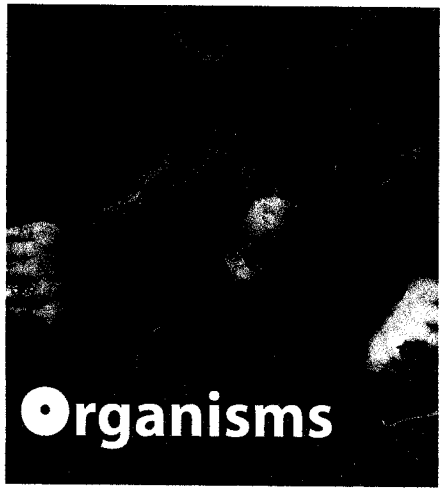
They differ because of where and how they formed. And over time, five major factors control how a soil forms. These factors are climate, organisms, relief (landscape), parent material, and time. That is *CLORPT* for short!



Temperature and moisture influence the speed of chemical reactions, which in turn help control how fast rocks weather and dead organisms decompose.

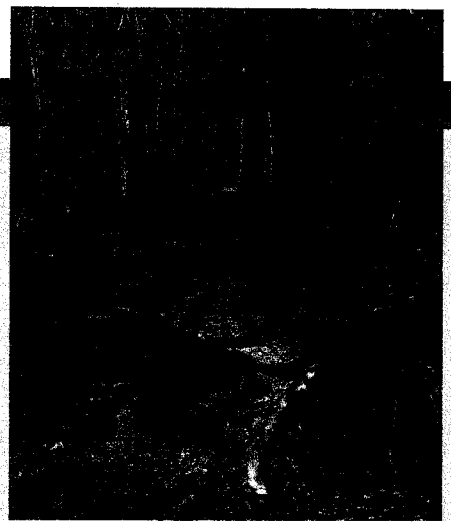
Soils develop fastest in warm, moist climates and slowest in cold or ***arid*** ones.





Plant roots spread, animals burrow, and bacteria eat. These and other soil organisms speed up the breakdown of large soil particles into smaller ones.

Roots are a powerful soil-forming force, cracking rocks as they grow. And roots produce carbon dioxide that mixes with water and forms an acid that wears away rock.

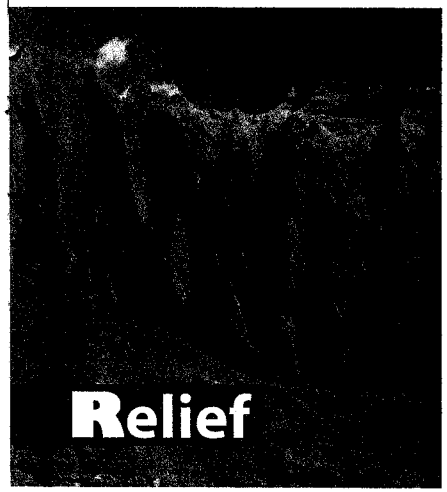


Each soil has its own history.

Charles Kellogg, Former Director, Soil Survey Division, USDA

>>Inside Scoop

Soil is slow "growing." A single inch of soil can take hundreds to thousands of years to



Relief

The shape of the land and the direction it faces make a difference in how much sunlight the soil gets and how much water it keeps.

Deeper soils form at the bottom of a hill than at the top because gravity and water move soil particles down the ***slope***.

Parent material

Just like you inherited some characteristics from your parents, every soil inherited traits from the material from which it formed.

Soils that form from limestone bedrock, for example, are rich in calcium. Soils that formed from materials at the bottom of lakes are high in clay.

Time

Older soils differ from younger soils because they have had longer to develop.

In the northern U.S., soils tend to be young because glaciers covered the surface during the last Ice Age, which kept soils from forming. In the southern U.S., there were no glaciers. There, the soils have been exposed for a longer time, so they are more weathered.

I ❤ SOIL

Emily K. D. Stockman
Soil Scientist, Farmer, Teacher
Massachusetts

*I live on a moderately well-drained **loam** soil in Plainfield, Massachusetts, with my husband Ty and my son Henry. I began my soils career at an early age as mud pie maker extraordinaire. Keeping my hands dirty, I spent a number of years as an organic farmer. I received my B.S. in soil science and my M.S. in **wetland** soil science from the University of Massachusetts Amherst.*

I am currently a consulting soil scientist specializing in wetlands, and I travel all over Massachusetts. Even though my state's soils are young (only about 10,000 years old!), they have been affected by CLORPT. In low-lying areas, I collect data on the organic-rich, gray soils of wetlands. In upland areas, I examine farmed soils. There, I find earthworms and crop roots thriving in the yellow, oxygen-rich B horizon. To me, digging a soil pit is like opening a present—each present has diverse colors, different layers, and a new story to tell.

Soil Science Society of America

The Soil Science Society of America is based in Madison, Wisconsin, with 6,000 international members dedicated to advancing the field of soil science. SSSA's core purpose is to advance soils as fundamental to life. SSSA's goal is that soils and soil science will be at the forefront of global consciousness to sustain life.

www.soils.org

Dig into this book, and you will discover soil isn't just dirt.

Go underground into the living world of soil. Explore how soil is part of our life—the food we eat, the air we breathe, the water we drink, the houses we live in, and how it even helps to control our climate and protect our rivers and streams. Find out how a soil becomes a soil, why some soils are good for growing things and others are not, why you can pour sand but not clay. Then, take an around-the-world trip and dig into dry soils, wet soils, deep soils, and even frozen soils. Along the way, meet the scientists who work with soil every day. And find out why they think soil is so much fun.

Soil! Get the Inside Scoop

Packed full of fascinating information—provided a unique opportunity for my students to understand the relationship of soil to their personal health and well being. A must-have for the class library or for any parent who wants to connect their child to Earth stewardship.

Julie Rosen, 4th Grade Teacher,
Woods Charter School, Chapel Hill, NC

Get connected with soil. Remember it's always right under your feet.

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