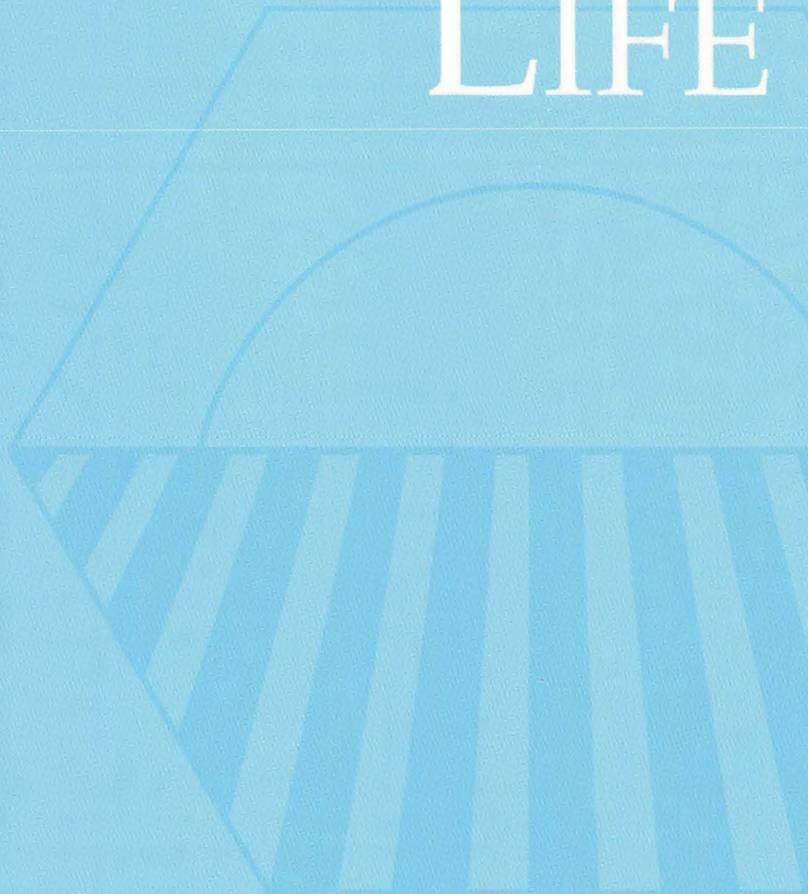


# *2003 Soil Planner*



Soil Science  
Society of America

# SOILS SUSTAIN LIFE

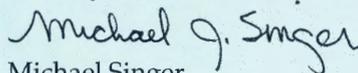


On behalf of the Board of Directors of the Soil Science Society of America, I want to wish you a happy, healthy and peaceful new year. This planning guide is the fourth produced by a cooperative agreement between the USDA-NRCS and the Soil Science Society of America. It has been a popular addition to offices around the world and I hope you find the 2003 edition a useful and enjoyable addition to your bulletin board. This year's planner, like last year's, highlights twelve state soils, their landscapes and locations.

This planner has a special purpose, to raise awareness and funds for a permanent soil science exhibit at the Smithsonian Institution's National Museum of Natural History (NMNH) in Washington, DC. Additional information on the exhibit can be found in this planner. Through the efforts of the Smithsonian Soils Exhibit Committee, a joint memorandum of understanding between the Smithsonian, NRCS and the Society has been signed to make a soil science exhibit a major component of the Smithsonian's *Forces of Change* project. The project is part of the national outreach effort of the Smithsonian. In the words of the memorandum, "...Case studies are the very backbone of the *Forces* exhibition program. This project offers a chance to present such a study of soil..." As now envisioned, the exhibit will be in a favorable location that will be seen by millions of visitors each year.

We have a wonderful opportunity to contribute to educating the public about the beauty and importance of soils in their lives through this exhibit. An initial contribution of \$50,000 from NRCS has jump-started the planning process for a permanent display that will include the 50 state soils, interactive exhibits, hands-on learning, and mobile exhibits. The Agronomic Science Foundation is raising funds for the exhibit and you can help by making a tax-deductible donation towards the \$400,000 fund raising goal. Contributions may be sent to the Agronomic Science Foundation, 677 South Segoe Road, Madison WI 53711, payable to ASF and identifying the Smithsonian Soils Project.

Thank you.



Michael Singer  
President, SSSA

## WHAT IS A STATE SOIL?

A state soil is represented by a soil series that has special significance to a particular state. Each state in the United States has selected a state soil, fifteen of which have been legislatively established. These "Official State Soils" share the same level of distinction as official state flowers and birds. Also, representative soils have been selected for Guam, Puerto Rico, and the Virgin Islands.

Areas with similar soils are grouped and labeled as soil series because their similar origins, chemical, and physical properties cause the soils to "behave" similarly for land use purposes. A soil series name generally is derived from a town or landmark in or near the area where the soil series was first recognized.

A soil series is a naturally occurring entity on the landscape. Therefore, a given series does not necessarily occur within the confines of only one state. Several state soils range beyond the respective states in which they are honored.

Each series consists of soils having major horizons that are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the soil profile. A soil profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface downward to unconsolidated material. Most soils have three major horizons, called the surface horizon, the subsoil, and the substratum.

The surface layer has the maximum accumulation of organic matter and is the horizon of maximum leaching of clay minerals and of iron and aluminum oxides. Some soils have a subsurface layer below the surface layer.

The subsoil, which underlies the surface layer or subsurface layer, is the horizon of maximum accumulation of clay minerals, iron and aluminum oxides and other compounds. These compounds may have been leached from the surface layer and re-deposited in the subsoil, or may have formed in place. Most likely, they occur as a result of a combination of both of these processes. The subsoil commonly has blocky or pris-

matic structure and generally is firmer and lighter in color than the surface layer.

The substratum is below the surface layer and subsoil. It consists of material that has been somewhat modified by weathering but is relatively unchanged by soil-forming processes.

## WHAT IS SOIL SURVEY?

This definition is from the Soil Science Glossary SSSA.

**soil survey**—(i) The systematic examination, description, classification, and mapping of soils in an area. Soil surveys are classified according to the kind and intensity of field examination. (ii) The program of the National Cooperative Soil Survey that includes developing and implementing standards for describing, classifying, mapping, writing, and publishing information about soils of a specific area.

## WEBSITES OF INTEREST:

Natural Resources Conservation Service:  
<http://www.nrcs.usda.gov>

Soil Survey Division:  
<http://soils.usda.gov/>

National Soil Survey Center:  
<http://soils.usda.gov/>

Soil Science Society of America  
<http://www.soils.org>

# STATE SOILS OF THE UNITED STATES

STATE	STATE SOIL	LEGISLATION	STATE	STATE SOIL	LEGISLATION
Alabama	Bama	April 1997	Nebraska	Holdrege	April 1979
Alaska	Tanana		Nevada	Orovada	May 2001
Arizona	Casa Grande		New Hampshire	Marlow	
Arkansas	Stuttgart	March 1997	New Jersey	Downer	
California	San Joaquin	August 1997	New Mexico	Penistaja	
Colorado	Seitz		New York	Honeoye	
Connecticut	Windsor		North Carolina	Cecil	
Delaware	Greenwich	April 2000	North Dakota	Williams	
Florida	Myakka	May 1989	Ohio	Miamian	
Georgia	Tifton		Oklahoma	Port	April 1987
Guam	Akina		Oregon	Jory	
Hawaii	Hilo		Pennsylvania	Hazleton	
Idaho	Threebear		Puerto Rico	Bayamon	May 1999
Illinois	Drummer	June 2001	Rhode Island	Narragansett	
Indiana	Miami		South Carolina	Bohicket	
Iowa	Tama		South Dakota	Houdek	February 1990
Kansas	Harney	April 1990	Tennessee	Dickson	
Kentucky	Crider	April 1990	Texas	Houston Black	
Louisiana	Ruston		U.S. Virgin Islands	Victory	
Maine	Chesuncook	April 1999	Utah	Taylorsflat	
Maryland	Sassafras		Vermont	Tunbridge	March 1985
Massachusetts	Paxton	May 1991	Virginia	Pamunkey	
Michigan	Kalkaska	December 1990	Washington	Tokul	
Minnesota	Lester		West Virginia	Monongahela	April 1997
Mississippi	Natchez		Wisconsin	Antigo	September 1983
Missouri	Menfro		Wyoming	Forkwood	
Montana	Scobey				

# GEORGIA STATE SOIL TIFTON

## Tifton Soil Profile

**Surface layer:** dark grayish brown loamy sand

**Subsoil, upper:** strong brown fine sandy loam

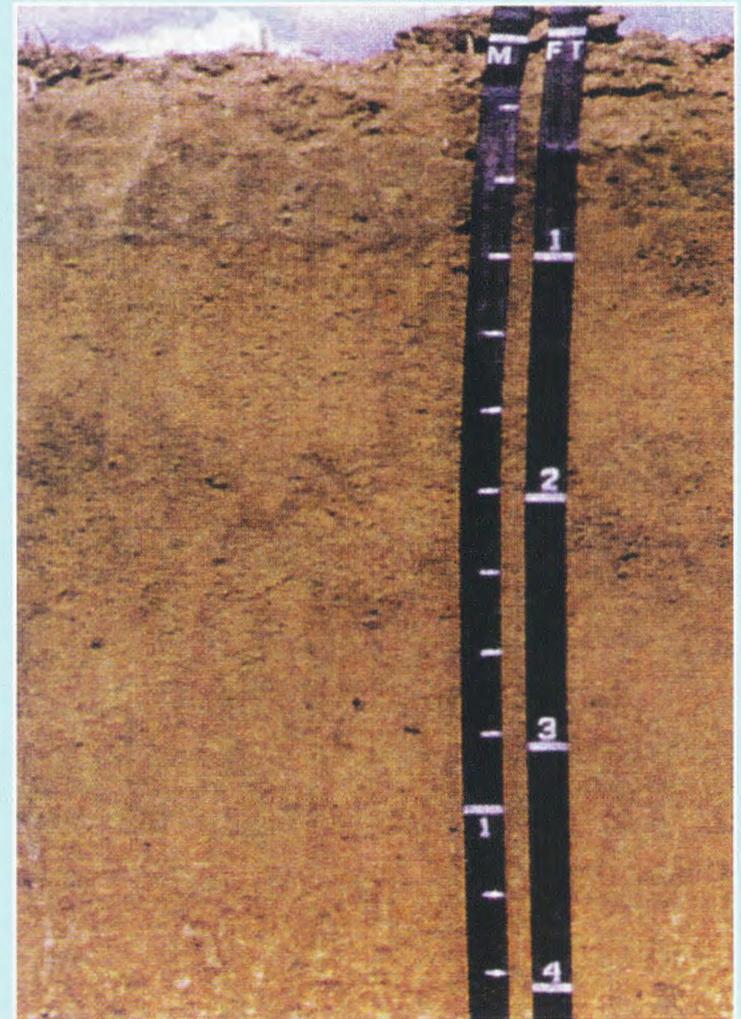
**Subsoil, middle:** yellowish brown sandy clay loam

**Subsoil, lower:** strong brown sandy clay

There is more than 5 percent plinthite in the subsoil

The Tifton series was one of the first series to be recognized in Georgia. It was established in Grady County, Georgia, in a 1908 soil survey conducted by Hugh Hammond Bennett. Tifton soils occur throughout the Southern Coastal Plain in Georgia. They are the most extensive soils in Georgia. They occur on more than 2 million acres in the State. They have been correlated in more Georgia counties (56) than any other soil.

Tifton soils formed in loamy sediments of marine origin. They are among the most important agricultural soils in the State. About 27 percent of Georgia's prime farmland is in areas of Tifton soils. Cotton, peanuts, soybeans, and corn are the principal crops grown on these soils



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday																																																																																																																													
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# January 2003

# HAWAII STATE SOIL HILO

## Hilo Soil Profile

**Surface layer:** dark brown silty clay loam  
**Subsoil:** dark reddish brown, dark grayish brown, and dark brown silty clay loam

Hilo soils have historically been used for sugarcane crops. With the decline of the sugar industry, there has been a shift toward truck crops, such as ginger and taro; orchard crops, such as macadamia and papaya; and forestry. These soils cover about 14,500 acres and are considered prime agricultural land. The Hawaiian definition of the word "Hilo" is "first night of the full moon." Also, the word is the Polynesian term for "Navigator."

The Hilo series consists of very deep, moderately well drained soils that formed in many layers of volcanic ash with lesser amounts of dust from the deserts of central Asia. These dust layers are noticeable because their gray color contrasts with the dark brown and dark reddish brown subsoil formed in volcanic ash. There are several buried layers within the Hilo soil profile. Hilo soils occur on the uplands of the Mauna Kea volcano along the Hamakua Coast.



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Saturday

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MARCH

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17 President's Day 18

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February 2003

# IDAHO STATE SOIL THREEBEAR

## Threebear Soil Profile

**Surface layer:** yellowish brown silt loam

**Subsoil, upper:** light yellowish brown silt loam

**Subsoil, middle:** very pale brown silt loam

**Subsoil, lower:** a very firm and brittle fragipan of yellowish brown silt loam

The Threebear series consists of moderately well drained soils formed in silty sediments with a thick mantle of volcanic ash. These soils are moderately deep to a fragipan. The name "Threebear" is derived from a creek in Latah County, Idaho. These soils are on hills with slopes of 5 to 35 percent.

Threebear soils are used mainly for timber production and wildlife habitat. The potential natural vegetation is western red cedar, grand fir, Douglas fir, western larch, and western white pine. The average annual precipitation is about 36 inches, and the average annual temperature is about 42 degrees F.



Sunday      Monday      Tuesday      Wednesday      Thursday      Friday      Saturday

FEBRUARY							APRIL						
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1

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16                      17                      18                      19                      20                      21                      22

23/30                      24/31                      25                      26                      27                      28                      29

# March 2003

# INDIANA STATE SOIL MIAMI

## Miami Soil Profile

**Surface layer:** brown silt loam

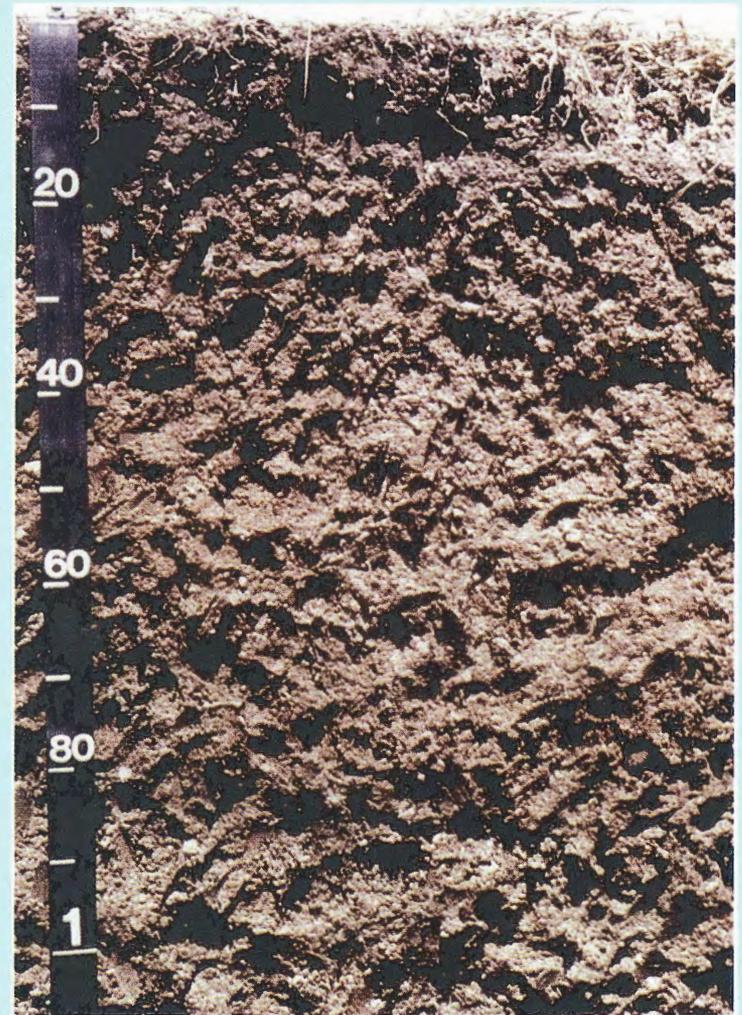
**Subsurface layer:** brown silt loam

**Subsoil:** dark yellowish brown clay loam

**Substratum:** brown loam

The less sloping Miami soils are used mainly for corn, soybeans, or winter wheat. The steeper areas are used as pasture, hayland, or woodland. A significant acreage has been converted to residential and commercial uses. There are 794,994 acres of Miami soils in Indiana.

Miami soils formed in calcareous, loamy till on the Wisconsin Till Plains. The native vegetation is hardwood forest. Miami soils are fertile and have a moderate available water capacity. Indiana is nationally ranked for agricultural production because of the highly productive Miami soils along with other prime farmland soils in the State.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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MARCH							MAY							
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23/30	24/31	25	26	27	28	29	25	26	27	28	29	30	31	

# April 2003

# MINNESOTA STATE SOIL LESTER

## Lester Soil Profile

**Surface layer:** very dark grayish brown loam

**Subsurface layer:** brown clay loam

**Subsoil:** dark yellowish brown clay loam

**Substratum:** yellowish brown loam

Lester soils are in 17 different counties in south-central Minnesota. They are of moderate extent and total over 600,000 acres. These soils formed under woody vegetation that has been removed in most areas for agricultural production. The principal crops are corn and soybeans. These soils are very productive and of significant importance to the economy in Minnesota.

Lester soils are well drained and formed in loamy, calcareous glacial till on ground moraines. The mean annual precipitation is about 28 inches, and the mean annual soil temperature is about 49 degrees F.



Sunday      Monday      Tuesday      Wednesday      Thursday      Friday      Saturday

APRIL							JUNE							1	2	3
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25                      26 Memorial Day      27                      28                      29                      30                      31

*May 2003*

# MENFRO

MISSOURI STATE SOIL

## Menfro Soil Profile

**Surface layer:** dark brown silt loam

**Subsurface layer:** brown silt loam

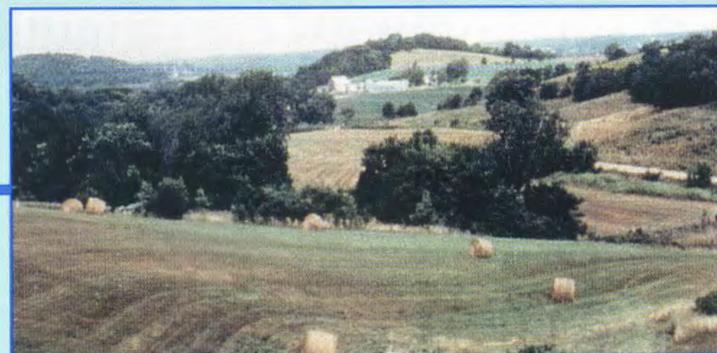
**Subsoil, upper:** brown silt loam

**Subsoil, lower:** dark brown silty clay loam

**Substratum:** brown silt loam

Menfro soils are used for corn, soybeans, small grain, and forage crops and for specialty crops of tobacco, grapes, vegetables, and fruits. These soils are desirable building sites. Most of the steeper areas support deciduous hardwood timber. These soils occur on about 780,000 acres in Missouri.

The first State Capitol building in St. Charles, the present State Capitol building, and the Governor's mansion were constructed on Menfro soils. The home of Daniel Boone and the first settlement west of the Mississippi River are in areas of Menfro soils. Hannibal, the home of Mark Twain, and Hermann, an historic German community, also are on Menfro soils.



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MAY							JULY						
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11	12	13	14	15	16	17	13	14	15	16	17	18	19
18	19	20	21	22	23	24	20	21	22	23	24	25	26
25	26	27	28	29	30	31	27	28	29	30	31		

*June 2003*

# NEVADA STATE SOIL OROVADA

## Orovada Soil Profile

**Surface layer:** light brownish gray sandy loam

**Subsurface layer:** light brownish gray loam

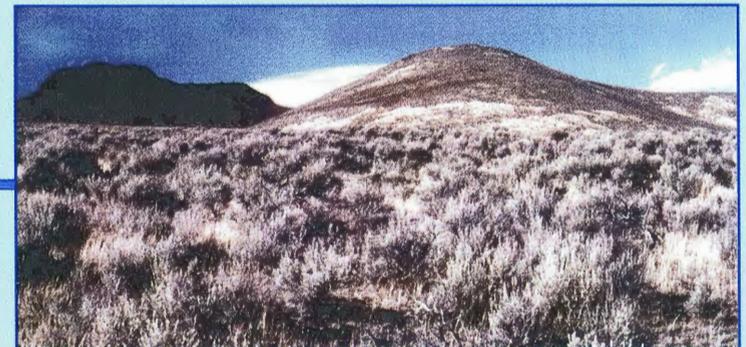
**Subsoil:** light gray fine sandy loam

**Substratum, upper:** light brownish gray very fine sandy loam with carbonates

**Substratum, lower:** pale brown silt loam with carbonates

Orovada soils are extensive in northern Nevada, where they have an extent of more than 360,000 acres. They are common soils on semiarid rangeland with sagebrush-grass plant communities. Orovada soils are arable when irrigated and are considered prime farmland. Alfalfa for hay and seed, winter wheat and barley, and grass for hay and pasture are the principal crops grown on these soils.

Orovada soils are well drained and formed in alluvium derived from mixed rock sources and in loess and volcanic ash. These soils typically occur in the Great Basin section of the Basin and Range physiographic province. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 47 degrees F.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4 <sup>Independence Day</sup>	5
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JUNE

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AUGUST

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24/31	25	26	27	28	29	30

*July 2003*

# NEW HAMPSHIRE STATE SOIL MARLOW

## Marlow Soil Profile

**Surface layer:** dark gray organic material

**Subsurface layer:** gray fine sandy loam

**Subsoil, upper:** yellowish red fine sandy loam with accumulations of iron, aluminum, and organic matter

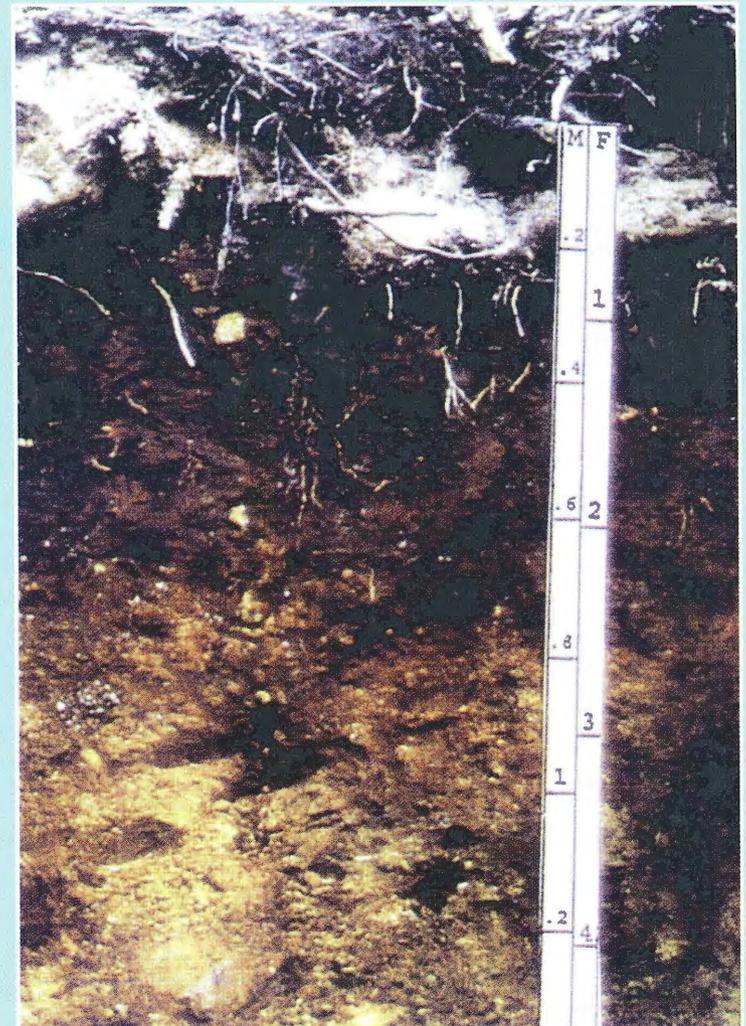
**Subsoil, lower:** olive gravelly fine sandy loam

**Substratum:** olive gray fine sandy loam (dense basal till)

Marlow soils occur on smooth, rounded drumlins (below right) as well as in the glaciated uplands of the mountains. The broad, gently sloping hillsides and summits of loamy drumlins have some of the more productive soils for agriculture in the harsh granitic landscapes of New Hampshire. These important soils are in the Marlow series.

The Marlow series was named in 1939 for the town of Marlow in Cheshire County, New Hampshire. This series consists of well drained soils that have a very firm substratum of basal till that was deposited by the glacier during its last advances over the Northeast about 15,000 years ago.

From rock-lined rolling fields to the steep forested uplands of the White Mountains, Marlow soils occur on much of the picturesque landscape of rural New Hampshire. Many of the state's current farms are on this same landscape, which the early settlers cleared of trees and stones. Marlow soils also are economically important for timber products.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
<p>JULY</p> <p>S M T W R F S</p> <p>1 2 3 4 5</p> <p>6 7 8 9 10 11 12</p> <p>13 14 15 16 17 18 19</p> <p>20 21 22 23 24 25 26</p> <p>27 28 29 30 31</p>				<p>SEPTEMBER</p> <p>S M T W R F S</p> <p>1 2 3 4 5 6</p> <p>7 8 9 10 11 12 13</p> <p>14 15 16 17 18 19 20</p> <p>21 22 23 24 25 26 27</p> <p>28 29 30</p>		1	2
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*August 2003*

# HAZLETON

PENNSYLVANIA STATE SOIL

## Hazleton Soil Profile

**Surface layer:** dark brown stony sandy loam

**Subsurface layer:** dark gray stony sandy loam

**Subsoil, upper:** dark reddish brown channery sandy loam

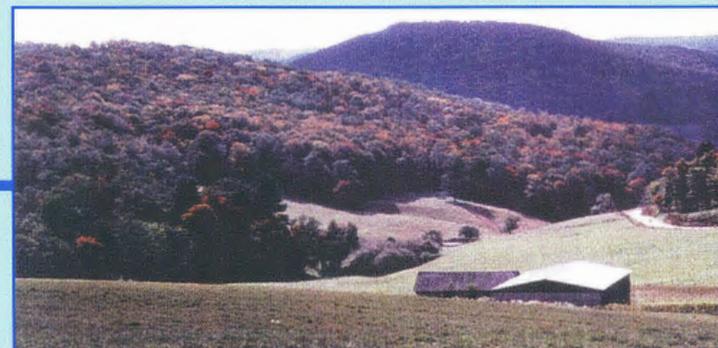
**Subsoil, lower:** yellowish brown channery sandy loam

**Substratum:** light yellowish brown very stony sandy loam

**Bedrock:** level-bedded, gray sandstone

Hazleton soils are named for the city of Hazleton in east-central Pennsylvania. They are used for woodland, cropland, hay, and pasture and occur in the areas of Ridge and Valley, Allegheny Mountain, High Plateaus, and Pittsburgh Plateaus. Forests consist of mixed northern hardwoods that include white and red oak, hickory, ash, maple, and black cherry.

Hazleton soils occur in half of the counties in Pennsylvania and make up more than 1.5 million acres in the state. The series was established in Carbon County, Pennsylvania, in 1960 and is also mapped in Kentucky, Maryland, New Jersey, Virginia, and West Virginia.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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28	29	30				

AUGUST							OCTOBER						
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24/31	25	26	27	28	29	30	26	27	28	29	30	31	

# September 2003

# RHODE ISLAND STATE SOIL NARRAGANSETT

## Narragansett Soil Profile

**Surface layer:** dark brown silt loam

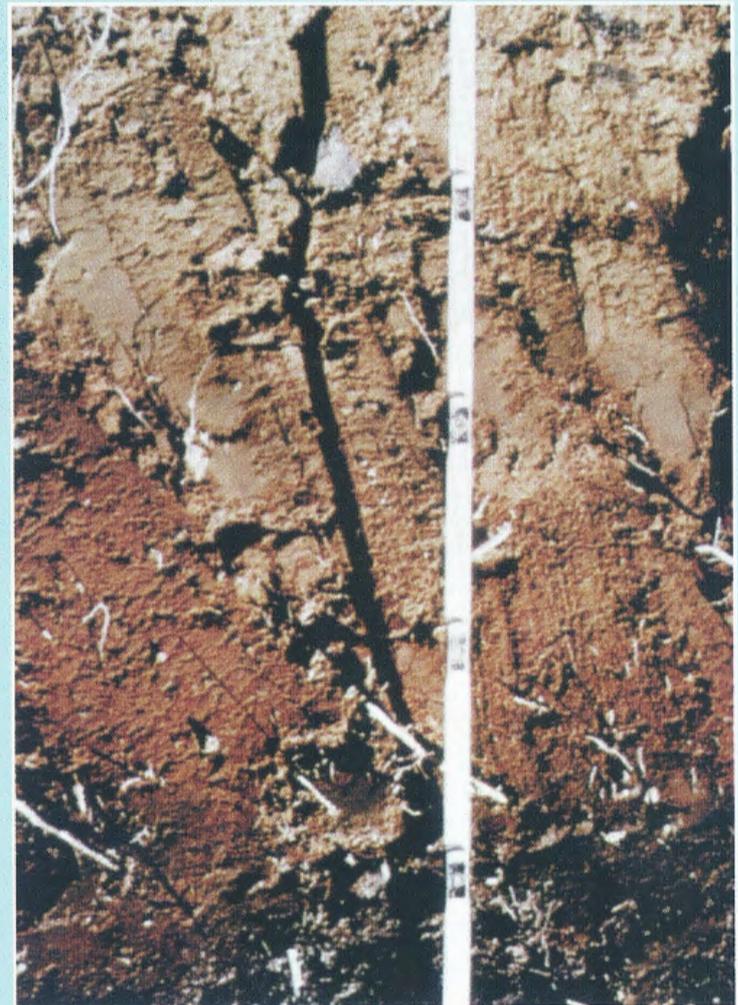
**Subsoil, upper:** yellowish brown silt loam

**Subsoil, lower:** olive brown silt loam

**Substratum:** light olive brown loamy fine sand to gravelly coarse sand

Narragansett soils occur on 12,000 acres in Rhode Island and also occur in the adjacent states of Connecticut and Massachusetts. They are productive agricultural soils. Silage corn, hay, and vegetables are the principal crops. Oaks, white pine, and beech are the most common forest species. Some areas are used for residential development. The name "Narragansett" is derived from a small community in southern Rhode Island.

The Narragansett series consists of well drained, loamy soils that formed in friable glacial till mantled with silty material. These soils are on uplands. The average annual precipitation ranges from 40 to 50 inches. The average annual temperature is 45 to 52 degrees F.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
SEPTEMBER S M T W R F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		NOVEMBER S M T W R F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23/30 24 25 26 27 28 29		1	2	3	4
5	6	7	8	9	10	11	
12	13 Columbus Day	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	31		

*October 2003*

# DICKSON

TENNESSEE STATE SOIL

## Dickson Soil Profile

**Surface layer:** brown silt loam

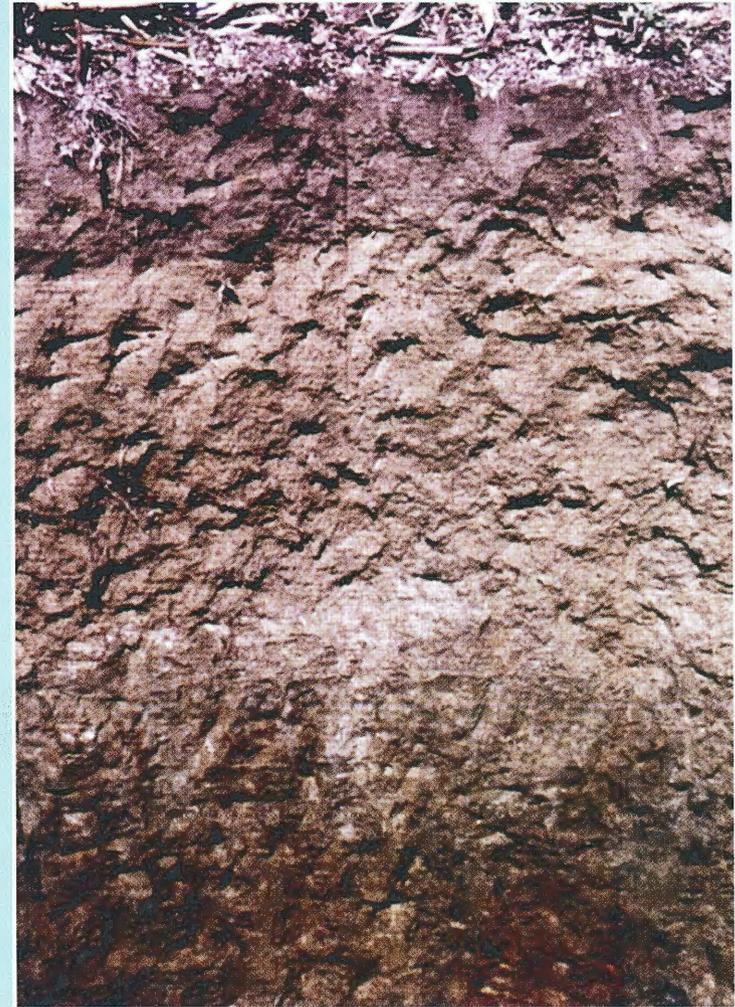
**Subsoil, upper:** yellowish brown silt loam

**Subsoil, middle:** a firm and brittle fragipan of yellowish brown silt loam

**Subsoil, lower:** red clay

The Dickson series consists of very deep, moderately well drained soils that formed in a silty mantle 2 to 4 feet thick and in the underlying limestone residuum. Most areas of these soils are on nearly level to gently sloping uplands. The Dickson series is characterized by a firm and brittle fragipan that is 18 to 36 inches below the soil surface.

Dickson soils occur on more than 400,000 acres. Corn and soybeans are the principal row crops. Most pastures support tall fescue and white clover. The mean annual precipitation is about 50 inches, and the mean annual air temperature is about 60 degrees F.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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OCTOBER

S	M	T	W	R	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

DECEMBER

S	M	T	W	R	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1

2

3

4

5

6

7

8

9

10

11 Veterans' Day

12

13

14

15

16

17

18

19

20

21

22

23/30

24

25

26

27 Thanksgiving

28

29

# November 2003

# PAMUNKEY

VIRGINIA STATE SOIL

## Pamunkey Soil Profile

**Surface layer:** dark brown fine sandy loam

**Subsoil, upper:** yellowish red clay loam

**Subsoil, lower:** yellowish red sandy loam

**Substratum:** yellowish brown and reddish brown, stratified sand and gravel

Pamunkey soils formed in stream terrace sediments in the James River drainage basin of Virginia. These sediments were from every physiographic province in the Virginia Commonwealth. The farm where the Pamunkey soils were first identified is near Jamestown, Virginia. It is considered to be the oldest tilled farm in the United States. The Jamestown historic farm is now in a conservancy program for agricultural use by James City County.

It is very likely that the first settlers at Jamestown were able to survive because of the food they produced on these fertile soils. The Pamunkey Tribe and other Indian Tribes were the first people to recognize the natural ability of this soil to produce food. In recent years these soils have produced record yields of corn and wheat.



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25 Christmas	26	27
28	29	30	31			

NOVEMBER							JANUARY							
S	M	T	W	R	F	S	S	M	T	W	R	F	S	
						1						1	2	3
2	3	4	5	6	7	8	4	5	6	7	8	9	10	
9	10	11	12	13	14	15	11	12	13	14	15	16	17	
16	17	18	19	20	21	22	18	19	20	21	22	23	24	
23/30	24	25	26	27	28	29	25	26	27	28	29	30	31	

# December 2003



# SSSA BRINGS SOILS TO THE SMITHSONIAN



The Smithsonian's National Museum of Natural History in Washington DC is embarking on a project to educate their six to nine million annual visitors about earth system science. The Soil Science Society of America (SSSA) wants to make sure soils are a key part of this message.

SSSA is working with the Smithsonian Institution to plan a Soils Exhibit as part of their Global Links/Forces of Change exhibit. The exhibit will include a long-term soil monolith section, as well as an educational, interactive section to help visitors understand how soil is linked with the health of the environment, people and the universe.

Please help make the museum exhibit, related publications, and web activities a reality. For more information or to get involved contact: Agronomic Science Foundation (ASF); 677 South Segoe Road; Madison, WI 53711. Phone: 608-273-8090 ext. 315. Web: [www.a-s-f.org](http://www.a-s-f.org)

## You Can Help Showcase Soils in the Smithsonian

The Agronomic Science Foundation (ASF) is working with SSSA members to raise \$1–3 million to establish the Smithsonian Soils Exhibit. SSSA is asking for your help by making a personal gift, or working with local organizations to sponsor part of the exhibit such as your state soil monolith.

### DONORS ARE RECOGNIZED AT THE FOLLOWING LEVELS:

<b>Sustainer</b>	\$100,000+
<b>Steward</b>	\$50,000–\$99,999
<b>Educator</b>	\$10,000–\$49,999

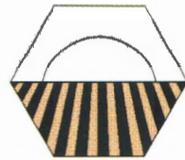
*Donors in the above categories will have their names on an honor roll in the Smithsonian display*

<b>Friend</b>	\$1,000–\$9,999
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*Friends will be recognized in SSSA newsletters, ASF annual report and SSSA Website: [www.soils.org](http://www.soils.org)*

State soil monoliths are available for sponsorship. Please ask for information on the availability, cost and recognition for your state's monolith.

Gifts in support of the Smithsonian Soils Exhibit will be individually acknowledged through the Agronomic Science Foundation, a 501(c)(3) organization.



Soil Science Society of America



## Credits

The 2003 Soil Planner was published by the Soil Science Society of American in cooperation with USDA-NRCS. Photos and source material were provided by the National Cooperative Soil Survey and USDA-Natural Resources Conservation Service. <http://wrev.nrcs.usda.gov/usda/soils/gallery/state/main.htm>

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