2012 Soils Planner

National Cooperative Soil Survey

Green Infrastructure
&
Sustainable Land Development

U.S. Department of Agriculture150-Year Anniversary Promoting Sustainability

Helping People Help the Land

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

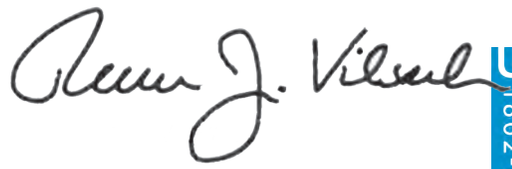
On February 12, 2009, the U.S. Department of Agriculture (USDA) broke ground to create the first People's Garden in commemoration of the 200th birthday of Abraham Lincoln, the 16th President of the United States. President Lincoln founded USDA in 1862—referring to it as "The People's Department"—and USDA has striven over the years to realize the President's vision by providing dedicated, high-quality service to the American people.

This year, as we observe USDA's 150th Anniversary, it seems particularly appropriate to highlight the Department's efforts to sustain and protect our Nation's natural resources and to provide for the well-being of our citizens. It is essential for the Federal Government to lead the way in enhancing and conserving our land and water resources, and "going green" to support a green economy is a natural course of action for USDA.

In the past 30 years, USDA has helped producers reduce soil erosion by more than 40 percent, and agriculture now leads the Nation in wetland restoration efforts. American farms act as "carbon sinks," mitigating the impact of global warming, and our farmland, pastures, and forests help clean our water and air. Moreover, USDA leads efforts on public and private lands to help reduce the impact of nutrient and sediment pollution on wildlife habitat, forest lands, and water quality while supporting community involvement in natural resource management, urban green space, and land stewardship.

The 2012 Soils Planner celebrates USDA's accomplishments and its commitment to the sustainability of the Nation's soil resources through the National Cooperative Soil Survey—a public-private partnership that studies and publishes information about U.S. soils. To learn more about the partnership or about USDA, the People's Garden, and conservation- and agriculture-related programs available in local communities, I cordially invite you to stop by a USDA Service Center or to visit the USDA Web site at www.usda.gov.

Tom Vilsack
Secretary of Agriculture



USDA 1862-2012 150 YEARS

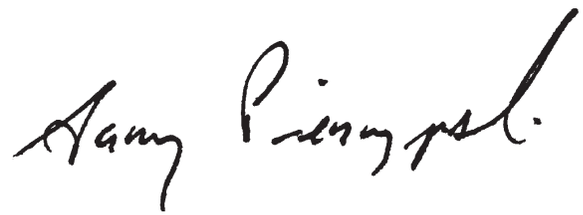
The USDA Natural Resources Conservation Service (NRCS) strives to help people help the land by understanding our soils and their importance to conservation worldwide. As part of the Agency's support of adaptation and mitigation for climate change, its soil survey, biological sciences, and engineering expertise have worked together to build an infrastructure of inventory, analysis, and standard practices. Take a look at our programs in NRCS that support the Green Economy by visiting our Web site http://www.nrcs.usda.gov. To find out more about the soil in your State, county, or local community, visit the National Cooperative Soil Survey Web site at http://soils.usda.gov/ and click on the Web Soil Survey.

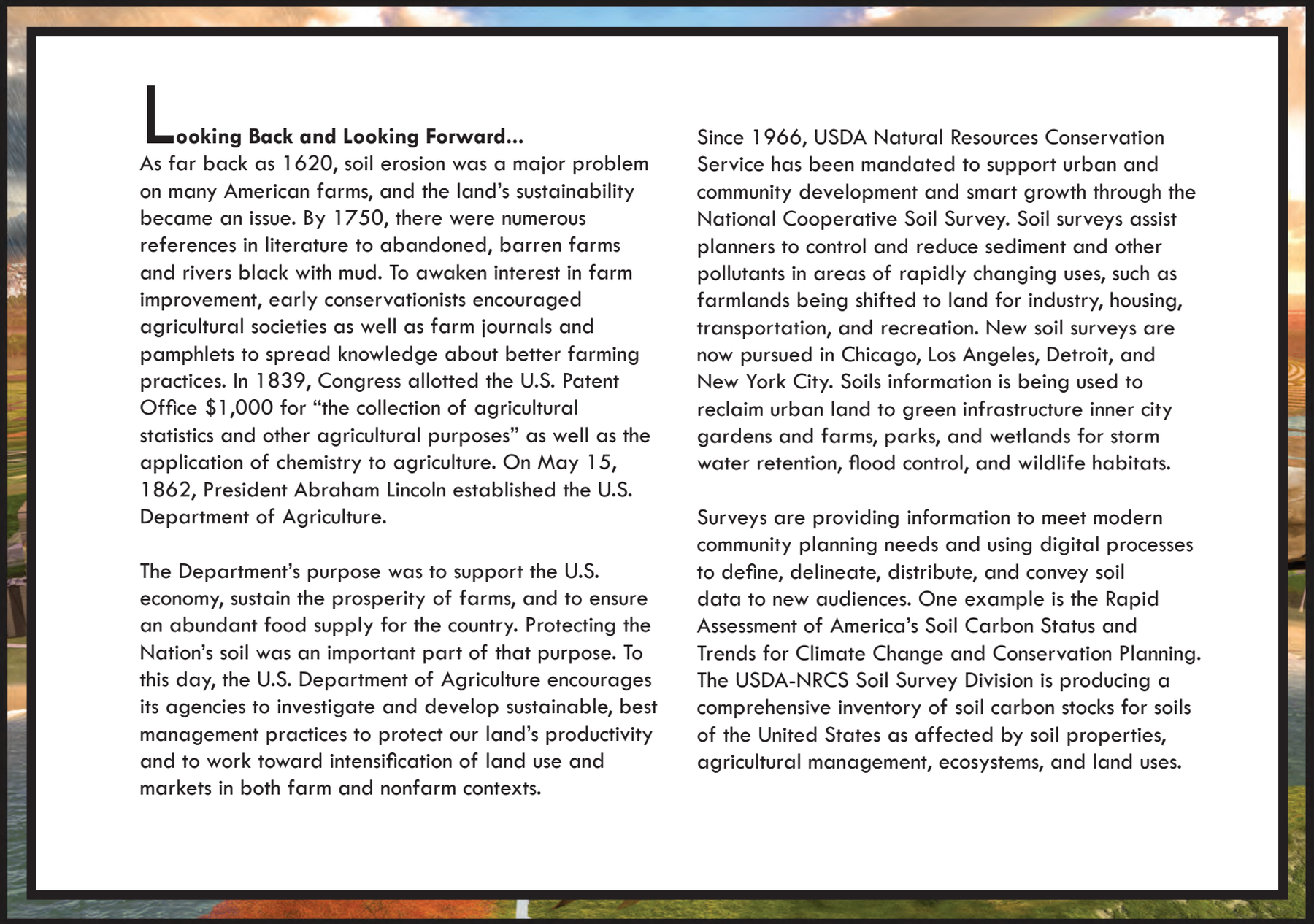
David White
Chief, USDA-Natural Resources Conservation Service
http://www.nrcs.usda.gov

The Soil Science Society of America (SSSA) is dedicated to advancing the field of soil science globally and educating the public on the value of soil. SSSA identifies eight urgent issues confronting humanity in the coming decades that need infrastructure solutions: demands for food, water, nutrients, and energy; and challenges of climate change, biodiversity, "waste" reuse, and global equity. All of these issues can look to preservation of the soil resource as a central answer to a sustainable future.

SSSA is pleased to be a partner with the USDA-NRCS in development of this annual Soils Planner and celebrates 150 years of achievements of the USDA.

Gary Pierzynski
President, Soil Science Society of America
http://www.soils.org





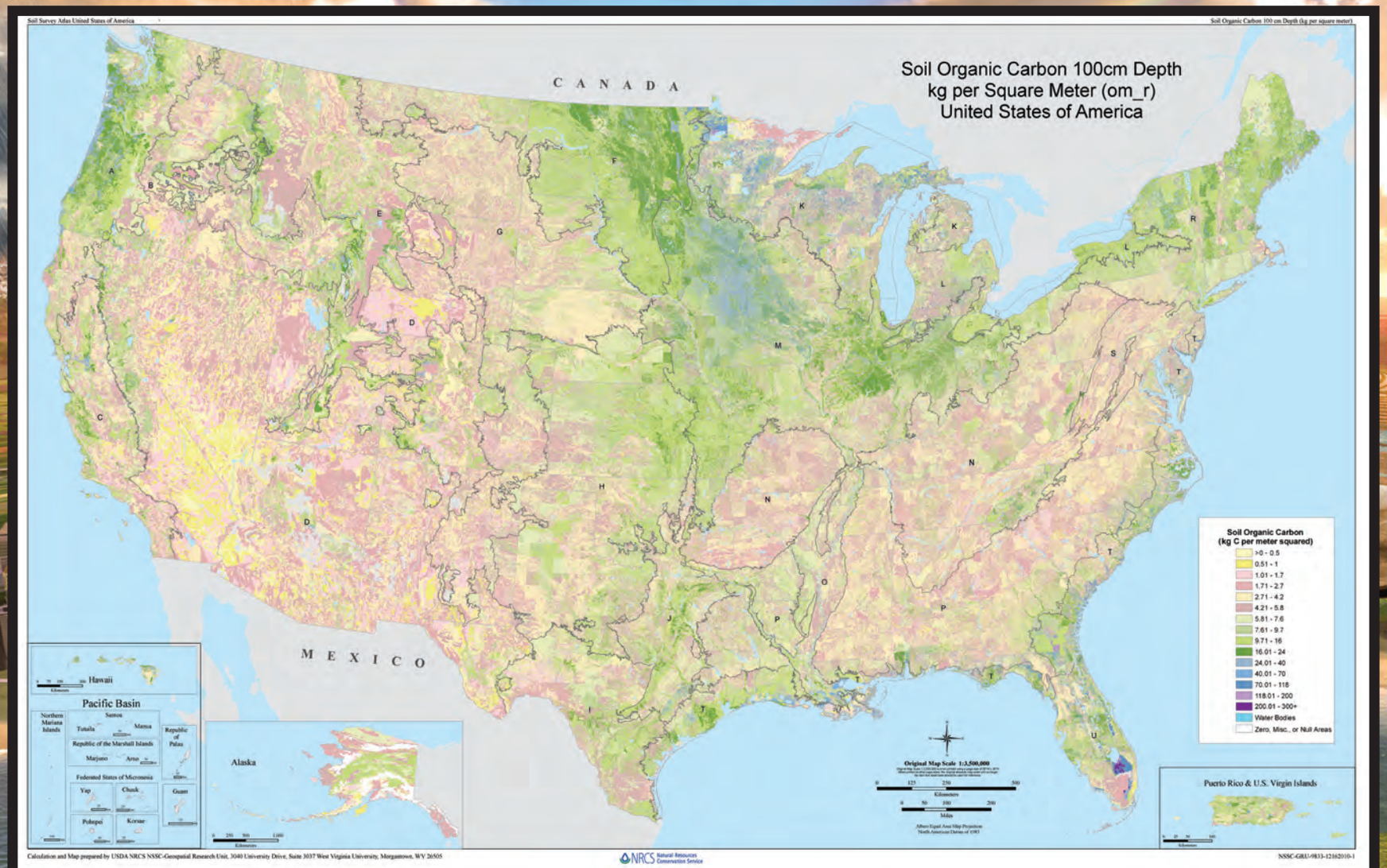
Looking Back and Looking Forward...

As far back as 1620, soil erosion was a major problem on many American farms, and the land's sustainability became an issue. By 1750, there were numerous references in literature to abandoned, barren farms and rivers black with mud. To awaken interest in farm improvement, early conservationists encouraged agricultural societies as well as farm journals and pamphlets to spread knowledge about better farming practices. In 1839, Congress allotted the U.S. Patent Office $1,000 for "the collection of agricultural statistics and other agricultural purposes" as well as the application of chemistry to agriculture. On May 15, 1862, President Abraham Lincoln established the U.S. Department of Agriculture.

The Department's purpose was to support the U.S. economy, sustain the prosperity of farms, and to ensure an abundant food supply for the country. Protecting the Nation's soil was an important part of that purpose. To this day, the U.S. Department of Agriculture encourages its agencies to investigate and develop sustainable, best management practices to protect our land's productivity and to work toward intensification of land use and markets in both farm and nonfarm contexts.

Since 1966, USDA Natural Resources Conservation Service has been mandated to support urban and community development and smart growth through the National Cooperative Soil Survey. Soil surveys assist planners to control and reduce sediment and other pollutants in areas of rapidly changing uses, such as farmlands being shifted to land for industry, housing, transportation, and recreation. New soil surveys are now pursued in Chicago, Los Angeles, Detroit, and New York City. Soils information is being used to reclaim urban land to green infrastructure inner city gardens and farms, parks, and wetlands for storm water retention, flood control, and wildlife habitats.

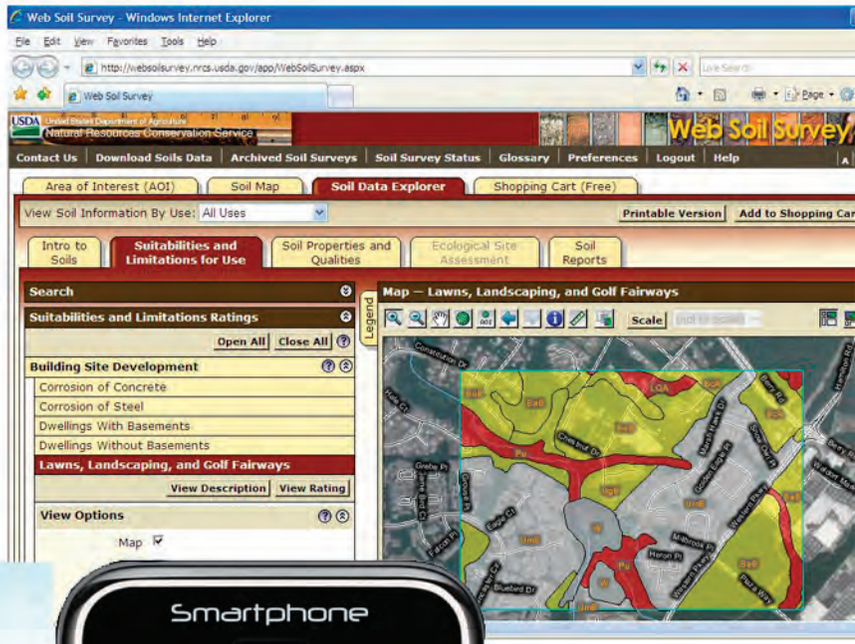
Surveys are providing information to meet modern community planning needs and using digital processes to define, delineate, distribute, and convey soil data to new audiences. One example is the Rapid Assessment of America's Soil Carbon Status and Trends for Climate Change and Conservation Planning. The USDA-NRCS Soil Survey Division is producing a comprehensive inventory of soil carbon stocks for soils of the United States as affected by soil properties, agricultural management, ecosystems, and land uses.



Example of soil carbon map that contributes to the knowledge base of adaptation to climate change.

Priming the Green Economy With Soil Survey Information
WebSoilSurvey.com on your computer or…SOILWEB on your smart phone.

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey partnership of Federal agencies, universities, State and local governments, and private consultants. Soil information is available online through WebSoilSurvey.gov or as an application on smart phones as SOILWEB.



In collaboration with NRCS and the National Cooperative Soil Survey, Dylan Beaudette (pictured) and Toby O'Geen (UC Davis Soil Resource Laboratory) developed a smart phone application that performs location-based queries from GPS-enabled cell phones. The application allows users to identify soils and access soil survey data at any location with cell phone coverage in the 48 contiguous U.S. States.

January 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 New Year's Day	2	3	4	5	6	7
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15	16 Martin Luther King, Jr. Day	17	18	19	20	21
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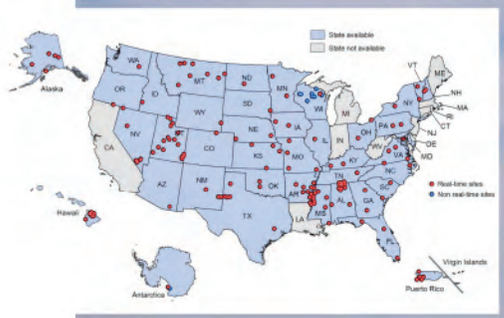
Climate Monitoring—Measuring Soil Moisture, Soil Temperature, and Snowpack in Real Time

The Soil Climate Analysis Network (SCAN) and SNOTEL (for SNOwpack TELemetry) is a comprehensive, nationwide soil moisture and climate information system designed to provide data to support natural resource assessments and conservation activities. http://www.wcc.nrcs.usda.gov/products.html



Map showing SCAN sites

At each station, soil temperature and moisture data are collected in real time at 5, 10, 20, 50, and 100 cm depths along with atmospheric data for air temperature, relative humidity, solar radiation, wind speed and direction, precipitation, and barometric pressure.

February 2012

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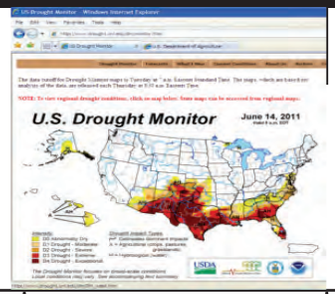
U.S. Drought Monitor uses real-time soil temperature and moisture data to predict crop stress in the United States.			1	2	3	4
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19	20 Presidents' Day	21	22	23	24	25
26	27	28	29			

The People's Garden, Washington, D.C.

The People's Garden at the USDA shows visitors the great potential on hand in growing garden vegetables. Located on the corner of Jefferson Drive and 12th St. SW, people often stop to ask questions about the garden. Part of the volunteers' training is to be spokespersons for the People's Garden Initiative, an effort by the USDA that challenges its employees to establish People's Gardens at USDA facilities worldwide or help communities create gardens. People's Gardens vary in size and type, but all have a common purpose: to help the community and the environment.

Composite panorama of the People's Garden at the U.S. Department of Agriculture in Washington, D.C. USDA photo by Lance Cheung.

March 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Sign of People's Garden, Washington, D.C.			1	2	3
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Bee Pastures Along California Highways
There are over 110 million acres in California with some 28 million dedicated to agriculture. As part of sustaining and intensifying agricultural productivity, less than 0.5 percent of California's total acreage helps provide critical forage for honey bees and native pollinators. This does not mean that acreage must be found that can be dedicated exclusively as bee pasture. Vegetation and management practices can be augmented on and near agricultural lands without sacrificing crop production, particularly plantings along California highways. Enhancing poor soils for wildflower plantings provides beauty and utility to otherwise barren lands.

View of bee pasture with California poppies and lupines adjoining fruit orchards and a California highway in San Joaquin Valley.

April 2012

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22	23	24	25	26	27	28
29	30	31				

Nitrogen Fertilizer Awareness Tool
http://nfat.sc.egov.usda.gov/

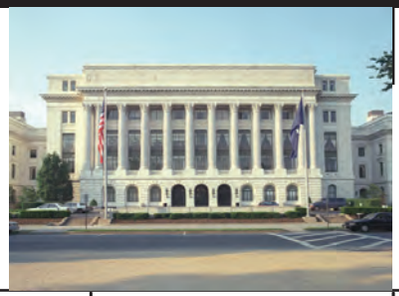
USDA's 150th Anniversary Year Devoted to the Sustainability of America's Agriculture

The U.S. Department of Agriculture was created under the Organic Act of May 15, 1862. It was administered by a commissioner appointed by President Abraham Lincoln. Pursuant to the new Department's legislative mandate "to procure, propagate, and distribute... new and valuable seeds and plants," the Division of Gardens and Grounds was established in 1862 to maintain the Department's propagating garden. The Division of Chemistry was established as well and included the beginnings of soil analysis functions. The foundations from early conservationists encouraged education and improved farming practices, and by the 1860s there were many sustainable practices in plowing strategies to control erosion and maintain soil fertility. The principles hold firm to today.

Nicolas T. Sorby's plan for diversified erosion control (1844-1857).

Farming on the Mall by USDA for seed propagation and demonstration. Credit: USDA History Collection. Rare and Special Collections, National Agricultural Library

May 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
USDA Building in Washington, D.C. 		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15 USDA 150th Anniversary	16	17	18	19
20	21	22	23	24	25	26
27	28 Memorial Day	29	30	31		

Green Roof System, Rooftop Garden, USDA Building, Washington, D.C.
High above the USDA building in Washington, D.C., lay 3,700 square feet of plants, soil, and gutters, which trickle into an internal cistern. Careful selection of soil material and drainage substrate ensures success of the project. The green roof system absorbs heat from the sun. Rainwater actually cools the roof, which is a natural remedy for reducing air conditioning costs. Besides the obvious energy-saving payoff, green roofs have other environmental benefits. Green roofs reduce storm water run-off (up to 90 percent), improve water quality of streams, and reduce the need for expensive, engineered structural stormwater management controls (stormwater ponds, vaults, etc.). Reducing or eliminating stormwater runoff at the source is far more cost effective compared to treating the stormwater or the effects of polluted stormwater "downstream."

The sedum are flourishing on the USDA green roof.

Eco-friendly design of USDA's Jamie L. Whitten Building and South Building complex for drought-tolerant plants and use of recycled water to the National Mall provided by Robert Snieckus, NRCS-USDA.

June 2012

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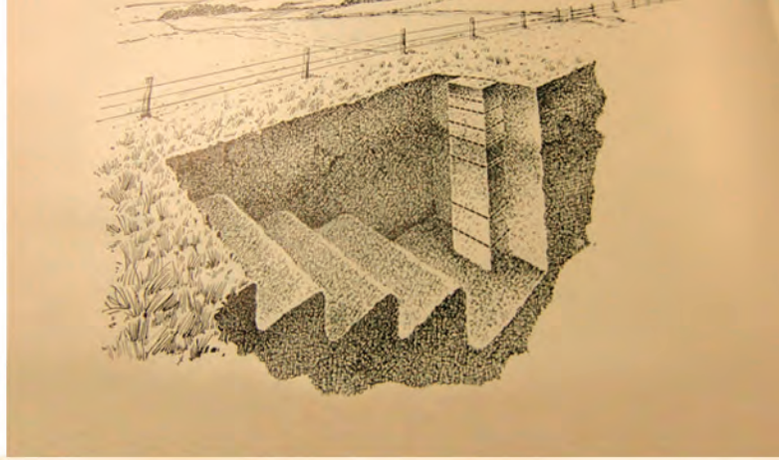
Land-Grant Colleges Begin the Education Towards Sustainability

Pioneers of agricultural education contended that ignorance was one of the causes of soil erosion and land degradation. The Morrill Act, which established the Land-Grant College system in the United States, was first proposed in 1857 and passed by Congress in 1859, but it was vetoed by President James Buchanan. In 1861, Congressman Justin Smith Morrill of Vermont resubmitted the act with the amendment that the proposed institutions would teach military tactics as well as engineering and agriculture. Aided by the secession of many States that did not support the plans, this reconfigured Morrill Act was signed into law by President Abraham Lincoln on July 2, 1862. The foundation knowledge of agricultural chemistry, soil science, and soil survey was consolidated at these colleges and disseminated to the community through student instruction and extension activities as a true "green" grassroots effort to improve the well-being of rural communities and the land.



Early instruction on how to prepare a soil pit for observation.

Under the act, each eligible State received a total of 30,000 acres of Federal land, within or contiguous to its boundaries. Overall, the 1862 Morrill Act allocated 17,400,000 acres, which when sold yielded a collective endowment of $7.55 million. Iowa was the first State to accept the terms of the Morrill Act, which provided the funding for Ames College (now Iowa State University). (Pictured) Old Main Hall, Iowa State College, 1896.

July 2012

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			Independence Day			
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Energy Estimator: Tillage
http://ecat.sc.egov.usda.gov/

Soil Survey and Watershed Planning Reversing the Impacts of Urban Development in South Lake Tahoe, California

In recent times, Lake Tahoe has been losing clarity at a rate of about 1 foot a year. The Best Management Practice Retrofit Program (BMP Retrofit) in the Lake Tahoe Basin of California and Nevada is intended to improve water quality and reduce or reverse the impacts of urban development on Lake Tahoe. Increasingly, urban runoff contributes a significant proportion of the pollutants entering our lakes and streams that are defined as impaired under the Clean Water Act. The BMP Retrofit Program requires all property owners to retrofit existing developed properties using BMPs that are designed to infiltrate the water generated by a 20-year, 1-hour (1 inch) design storm event within their property boundaries.

The BMP Retrofit Program protects beautiful landscapes and water clarity of Lake Tahoe, California and Nevada.

August 2012

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Map of Limiting Factors for "Infiltration" Best Management Practices (BMPs) based on soil survey.

New York City Soil Survey, Staten Island-Seaview Hospital and the Farm Colony—Site of Rikers Soil Degraded Farmland

Abandoned in 1975, Seaview Hospital and the Farm Colony were collectively named the first historic district on Staten Island, NY. The Farm Colony, which was founded as a poor farm in 1829, was a place where New York City's downtrodden could help themselves and society by producing food as an inner city farm. The coal ash and slag waste from the poor farm and hospital furnaces were disposed onsite, creating the Rikers Soil shown above. The area is now used for recreation but is being considered for reclamation as a historical site and farm. Soil mapping in New York is normally very difficult because often there is no indication that there has been any change in the parent material or if it is natural rock. In most urban areas, soil mappers use historic maps, photographs, and oral histories to help delineate landscapes and sort out if or how the landscape might be derived from fill material.

Sampling of Rikers Soil

Site of Seaview Hospital and Farm Colony, Staten Island, NY.

September 2012

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Block diagram of Rikers Soil landscape with soil profiles.

Labor Day

Energy Conservation by Irrigation Efficiency—Greening the Farm, the Office, and the Home

Opportunities abound to combine irrigation technology and soil science to save water, conserve energy, and sustain productivity in all walks of our life. USDA has calculated that the largest energy savings on the farm is tied to irrigation efficiency. New technology, such as drip emitters and overhead spray systems, apply the water only where it is needed in the right amounts. Urban and home landscaping use these same practies to lower temperatures and increase vegetative cover.

Picture of efficient irrigation on western farmlands.

October 2012

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Diagram of drip edge and root system for urban forestry.

Columbus Day

Energy Estimator: Irrigation
http://ipat.sc.egov.usda.gov/

Watershed Management—Reclaiming Urban Land to Parkland and Farmland in the City

Northerly Island sits on the former site of Meigs Field, which was a small airport that serviced small, private planes. The airport was taken out of service in March 2003, and the park was converted to a prairie restoration site, managed by the Chicago Park District. Various birdhouses are situated throughout the park, and a variety of flowers, shrubs, and trees are planted to encourage diverse wildlife. Northerly Island was one of many parks in the city investigated in 2010 as part of the Cook County/ Chicago urban soil survey.

Northerly Island with the Chicago skyline in the background. The soils at Northerly Island are comprised of sandy fill material with a silty clay loam surface horizon.

November 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Detroit, Michigan, resident Edith Floyd is putting vacant land in her neighborhood to good use by raising vegetables. Floyd grows vegetables in high tunnels on vacant lots where dilapidated homes were razed in her neighborhood.				1	2	3
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11 Veterans Day	12	13	14	15	16	17
18	19	20	21	22 Thanksgiving Day	23	24
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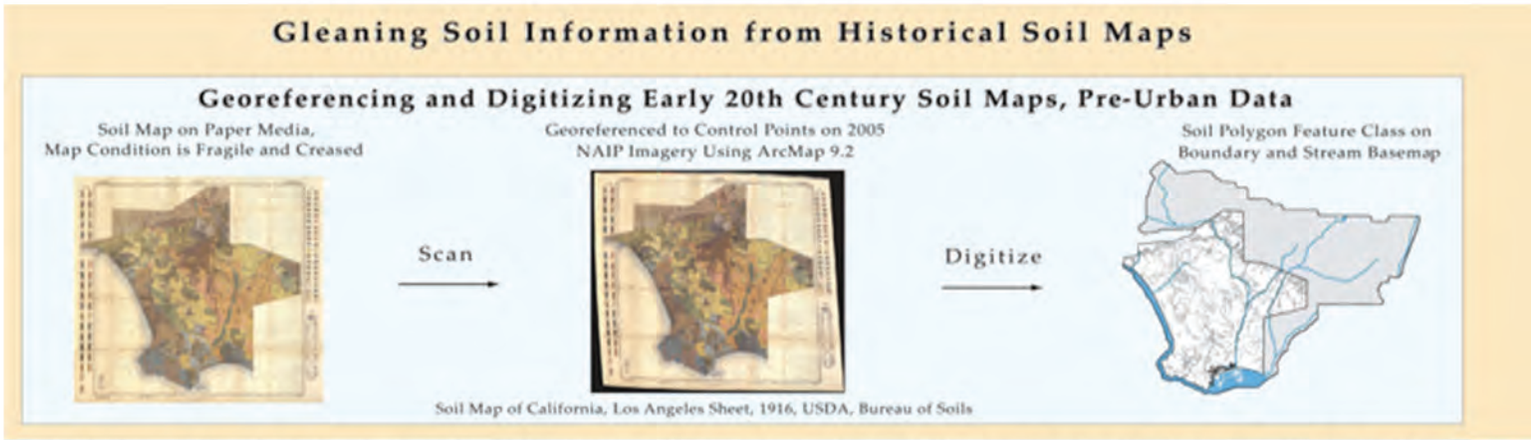
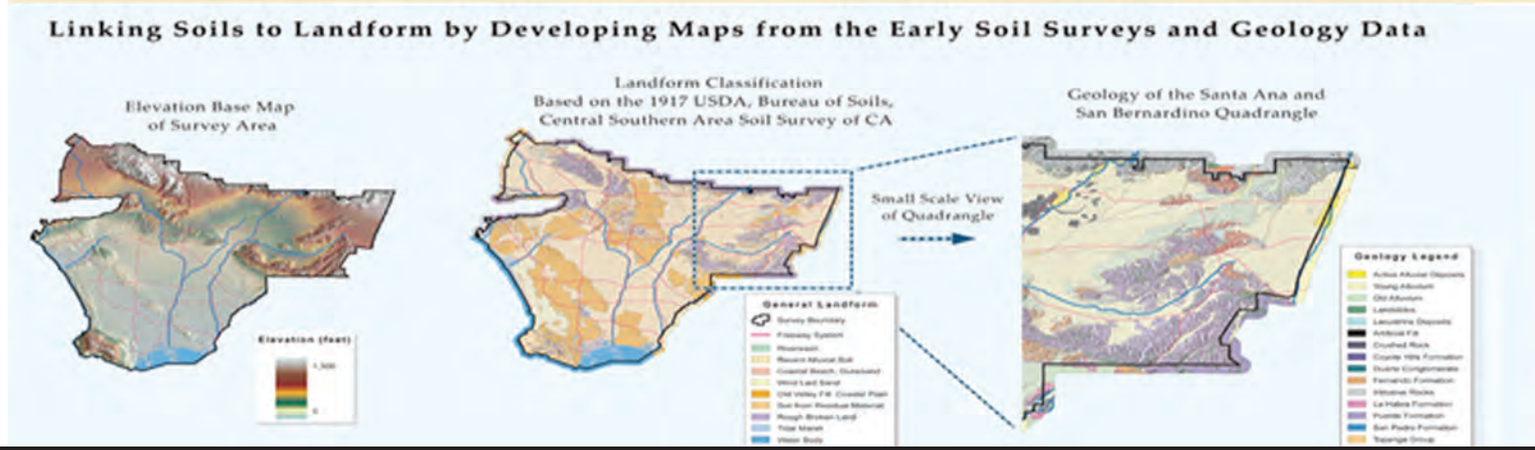
Los Angeles Basin-Soil Survey in an Urban Setting
Planning for Water Management in a Green Economy

The Soil Survey of Los Angeles County, Southeast Part, is being conducted primarily to plan for water management. Soil descriptions from the old surveys can be compared with the soil scientist's field notes. Pre-mapped soil lines can be conceptualized and interpolated based on the landform associated soil lines of the old surveys.



Geo-referencing and digitizing early 20th century soil maps, pre-urban data.



Linking soils to landforms by developing maps from the early soil surveys and geologic data.

December 2012

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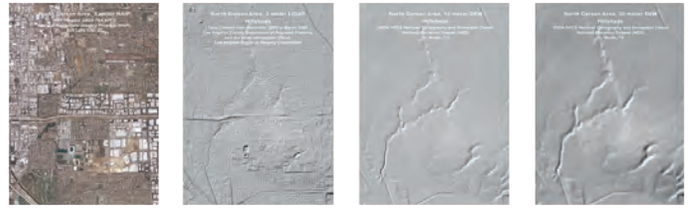
Assessing the urban soil landscape with a new set of soil survey tools: display of imagery and comparison of hillshades derived from three resolutions of elevation data showing their different capabilities for visualizing certain landform features.



Christmas Day

This profile site is in Santa Clara County, CA. It is redeposited material from a Hangerone series soil, which is mapped on a tidal marsh.

2012 Events

January
January 22-26, 92nd American Meteorological Society (AMS) Annual Meeting and 28th Conference on Interactive Information Processing Systems (IIPS), New Orleans, Louisiana, http://www.ametsoc.org/meet/annual/
January 29-February 1, American Society for Testing and Materials (ASTM) Committee Week- Soil and Rock, Atlanta, Georgia

February
February 20-24, American Geophysical Union Ocean Sciences Meeting 2012 at the Salt Palace Convention Center in Salt Lake City, Utah
February 24-28, Association of American Geographers Annual Meeting, New York City, New York

March
March 19-23, American Society for Photogrammetry & Remote Sensing (ASPRS) 2012 Annual Conference, Sacramento, California, http://www.asprs.org/meetings/
March 26-29, Global-Change Open Science Conference, London International Convention Centre, London, United Kingdom, http://www.planetunderpressure2012.net/

April
April 15-20, American Society for Testing and Materials (ASTM) Committee Week- Soil and Rock, Atlanta, Georgia

May
May 21-25, Southern Regional Cooperative Soil Survey Work Planning Conference, Bowling Green, Kentucky

June
June 4-8, North Central Regional National Cooperative Soil Survey Planning Conference, Lincoln, Nebraska
June 12-15, 7th EUREGEO Congress, Geological, Seismic and Soil Survey, on "EUropean REgional GEOscientific cartography and Information Systems" Bologna, Italy
June 18-22, Northeastern Regional Cooperative Soil Survey Work Planning Conference, Bangor, Maine
June 25-29, West Regional National Cooperative Soil Survey Work Planning Conference, Davis, California
June 28-29, American Society for Testing and Materials (ASTM) Committee Week- Soil and Rock, Symposium on Dynamic Testing of Soil and Rock: Field and Laboratory, Sheraton San Diego Hotel & Marina; San Diego, California

July
July 2-6, 4th International Congress EUROSOIL 2012, Soil Science for the Benefit of Mankind and the Environment, Fiera del Levane, Bari, Italy, http://www.eurosoil2012.eu/d/12/News/17/Eurosoil_2012_website/
July 22-25, 67th Soil and Water Conservation Society International Meeting, Ft. Worth, Texas
July 22-27, 2nd International Conference of Hydropedology, Leipzig, Germany, http://www.ufz.de/hydropedology 2012

August
August 6-10, 6th International Crop Science Congress, Fundaparque Convention Center, Bento Goncalces-Rio Grande do Sul State, Brazil, http://www.intlcss.org/
August 5-10, 97th Ecological Society of America (ESA) Annual Meeting 2012, Oregon Convention Center, Portland, Oregon
August 5-15, 34th International Geological Congress, International Union of Geological Sciences Sciences (IUGS), International Geophysical Committee (IGC), Brisbane, Australia

September
September 30-October 5, 4th International Eco Summit 2012 - Ecological Sustainability Restoring the Planet's Ecosystem Services, Columbus, Ohio

October
October 21-24, ASA-CSSA-SSSA Annual Meetings, Cincinnati, Ohio

November
November 4-7, Geological Society of America Annual Meeting, Charlotte, North Carolina

December
December 2-7, Soil Solutions for Diverse Landscapes, Joint Conference of ASSSI and NZSSS, Hobart, Tasmania, Australia, http://www.soilscience2012.com/
December 10-14, 2012 American Geophysical Union (AGU) Annual Meetings, San Francisco, California

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August

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September

S	M	T	W	T	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					

October

S	M	T	W	T	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		

November

S	M	T	W	T	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

December

S	M	T	W	T	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				

2013 Calendar

U.S. Department of Agriculture
150-Year Anniversary Promoting Sustainability

USDA-NRCS Photo Database
USDA Historical Photo Archives, National Agricultural Library, Beltsville, MD

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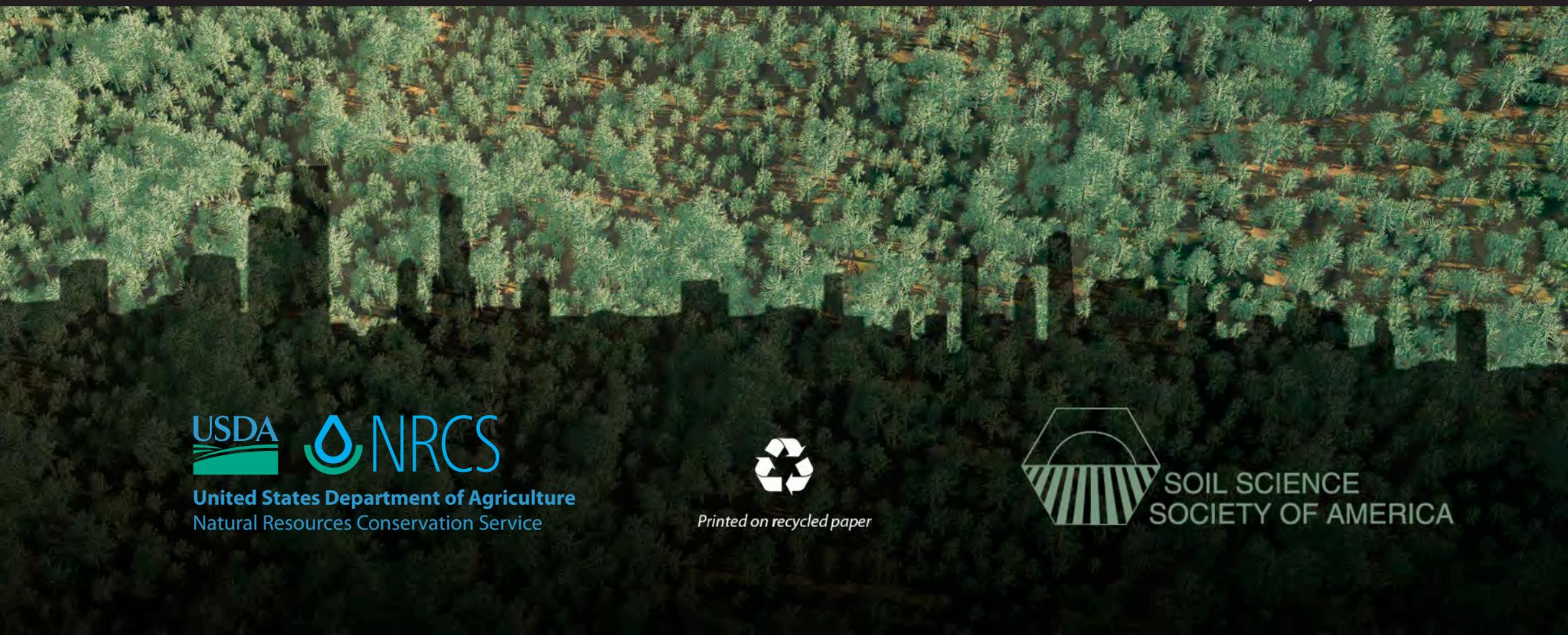
PA-2103 January 2012



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