Experience Your America

Update on The National Park Service Soil Survey Activities

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Denver, Colorado
### National Park Service

#### National Level

<table>
<thead>
<tr>
<th>Description</th>
<th>Acres/Parks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres to be mapped</td>
<td>84.5 Million</td>
</tr>
<tr>
<td>Parks to be mapped</td>
<td>270</td>
</tr>
<tr>
<td>Acres mapped thru FY07</td>
<td>24.5 Million (29%)</td>
</tr>
<tr>
<td>Parks mapped thru FY07</td>
<td>140 (52%)</td>
</tr>
<tr>
<td>Alaska Acres</td>
<td>54 Million (64%)</td>
</tr>
<tr>
<td>Alaska Parks</td>
<td>16 (6%)</td>
</tr>
</tbody>
</table>
# NCSS West Region Status

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parks to be mapped</td>
<td>134</td>
<td>(50% of total)</td>
</tr>
<tr>
<td>Acres to be mapped</td>
<td>76.5 million</td>
<td>(90% of total)</td>
</tr>
<tr>
<td>Alaska Acres to be mapped</td>
<td>48 Million</td>
<td>(63%)</td>
</tr>
<tr>
<td>Alaska Parks to be mapped</td>
<td>15</td>
<td>(4%)</td>
</tr>
<tr>
<td>Parks completed thru FY07</td>
<td>51</td>
<td>(38%)</td>
</tr>
<tr>
<td>Acres mapped thru FY07</td>
<td>13.7 million</td>
<td>(18%)</td>
</tr>
</tbody>
</table>
NPS Alaska Strategy

Alaskan Parks  16 (6%)  
Alaskan Acres  54 Million (64%)

Denali National Park Complete  
(6 Million Acres)

15 Parks and 48 Million acres remain

Current Plan prioritizes Parks, will use multiple mapping scales and multiple levels of mapping orders to meet the needs of the parks

Have initiated mapping at Yukon-Charley Rivers National Preserve in FY08 – 2.5 million acres
• Current Interagency Agreements with NRCS in Western Region addresses;
  • 7 states
  • 36 parks
  • 15 million acres
  • $2.25 million annually
Alaska

Yukon – Charley Rivers National Preserve
2.5 Million Acres

Estimated Completion FY12

Dedicated Soil Survey Crew in Fairbanks

• Soil Survey Project Leader
• Soil Scientist
• 2 Plant Ecologists
Arizona
Glen Canyon National Recreation Area (UT689)

1.25 Million Acres

Estimated Completion FY 11

Dedicated Soil Survey Crew in Page, AZ

Soil Survey Project Leader
• Soil Scientist
• Range Ecologist

Will also map Petrified Forest NP, and other NPS units in Northern Arizona
Completed Canyon de Chelly National Monument in FY07
California
Lassen Volcanic National Park (CA789)

108,000 Acres

Estimated Completion FY 09
California

Joshua Tree National Park (CA794)

1.05 Million Acres

Estimated Completion FY 10
California

Soil Survey of Channel Islands National Park, California

Soil Survey of Yosemite National Park, California

Soil Survey of Santa Monica Mountains National Recreation Area, California
California

Soil Survey of Pinnacles National Monument, California

Soil Survey of Redwood National and State Parks, California
Mojave Desert Digital Soils Mapping Project Area
Idaho
City of Rocks National Reserve

- 15,000 acres
- Mapping and digitizing completed
- Manuscript needs to be developed
- Looking at setting it up as a new non-MLRA soil survey area
Nevada

Great Basin National Park (NV708)

• 78,000 acres

• Mapping and digitizing 90% completed

• Estimated to be completed in FY09

• Will be set up as a new non-MLRA soil survey area by NRCS
Great Basin National Park (NV708)
Utah

Arches National Park (UT687)
77,000 Acres
Estimated Completion FY 08

Canyonlands National Park (UT688)
340,000 Acres
Estimated Completion FY 09

Dedicated Soil Survey Crew in Richfield, UT
• Soil Survey Project Leader
• Soil Scientist
• Range Ecologist
• Cultural Resource Specialist

Will also work on Zion NP, Cedar Breaks NM, and Bryce Canyon NP
Washington

North Cascades National Park Complex (WA774)

684,314 Acres
Estimated Completion FY 09
Utilizing Remote Area Soil Proxy (RASP) Model to facilitate mapping in wilderness and other remote areas
Continued Research from Washington State University on RASP Model
NPS Landform Mapping Project also underway to support RASP Model

Dedicated Soil Survey Crew in Mount Vernon, WA

• Soil Survey Project Leader
• Soil Scientist
• Forest Ecologist
• NPS Physical Scientist

Will also work on Mount Rainier NP, and Olympic NP
Washington

Soil Survey of San Juan Island National Historical Park, Washington
Research Needs

NPS would like to see new focus on integrated research of soil properties and ecological sites to improve the use and management and interpretation of soils which might otherwise be broadly mapped

• Soils with chemical crusts (Death Valley, Yellowstone)

• Various soils developing with desert pavement

• Soils with upper horizons dominated by vesicular pores
Ecological Site Descriptions

Essential and Required for all funded NPS projects in Western Region

Suggest more relevant information in the Soils section of the ESD to showcase relationships of soil properties and plant composition and plant physiology.

Depict “soil states” in State and Transition models

Need to continue to review different levels of ESD’s to meet new concepts of resource inventories currently underway

Consider an ecological site for miscellaneous units named the same (riverwash, badlands, etc.)
National Park Service

NPS Soil Resource Inventory Staff

Pete Biggam - Soils Program Manager

Judy Daniels - Data Manager

Branon Barrett – GIS Specialist

Troy Kashon – GIS Specialist

Sue Southard – NRCS/NPS Liaison
Our Goal........

Promoting the use of soils information in NPS decision making and making it accessible in a user friendly way to staff and partners.
What does the NPS want for soil survey deliverables?

- Set up of the NPS lands as a non-MLRA soil survey area where applicable and reasonable (parks > 10,000 acres not available on Web Soil Survey)

- SSURGO map unit/data map unit (dmu) data unique or edited to meet what is present within the park (dmu’s not always linked to those external to the park)

- All pedon and other site data georeferenced and entered into NASIS

- Emphasis on how soils relate within the park ecosystems and the processes that form them
What does the NPS want for soil survey deliverables?

- What’s so cool about this park’s soil?
- Consistent SSURGO exports including local and standard interpretations to meet NPS needs
- For all parks, even if previously mapped, completion of NPS System Lands map unit overlaps in NASIS
What’s the Point with Point Data?

Type locations, lab data, transect data, and road cut observations all may all be used by NPS staff and researchers.

What is needed is not just a point on a map but the DATA associated with the point.
The SRI is currently developing an ArcGIS Desktop toolset that will geospatially link soils data allowing users to access soils data in an interactive manner. The current focus is on the map unit descriptions, pedon point data, and ecological site descriptions.

The current toolset includes a Map Unit Identify Tool and a Pedon Identify Tool.
System Requirements

- ArcGIS 9.2 sp4
- .NET Framework
- Application requires administrative rights to install
The Map Unit Identify Tool can be used on any I&M park that has been completed by the SRI. To use the tool the user simply selects a soils layer in the ArcMap table of contents, clicks a polygon of that layer, and an associated **help file** containing that map unit’s description is opened.
Why is the map unit description and the NPS Map Unit Identify Tool important?

- The map unit description is the “backbone” of the soil survey for the National Park Service. There is a wealth of information contained in the map unit descriptions that cannot always be conveyed in a single map or contained in a shapefile or feature class attribute table.

- There is a need for easier access to the available soils data, and the Map Unit Identify Tool helps to meet that need.

- It also educates park staff on the soil map unit concept and the link to the soil map unit legend.
From the map unit description, **ecological site descriptions** can be accessed via a hyperlink in the help file if there is a NRCS approved ESD Report for that map unit.

**Interpretive Groups**
- Land capability subclass (nonirrigated): 6e
- Land capability subclass (irrigated): 6e
- Ecological site: Hills, south-facing 17-19” p.z. (R015X100CA)

**Typical Profile**
- A1: 0 to 6 inches; loamy sand
- A2: 6 to 14 inches; loamy sand
- C1: 14 to 23 inches; gravelly loamy sand
- C2: 23 to 36 inches; extremely gravelly loamy sand
- Cr: 36 to 40 inches; bedrock
The **Pedon Identify Tool** is currently in the early development stages. The concept is similar to the **Map Unit Identify Tool** in that a help file will be called when the user makes a selection by clicking a point in a selected layer. This will allow for more site specific information to be accessed by the user.
Why is the pedon data important and how is it useful?

- It allows users access to the pedon data collected in the process of a soil survey on park lands.

- It also educates users to the different types of pedon data that are collected in the process of a soil survey on park lands.
Future development goals

• We are currently exploring the use of ArcGIS Server to distribute data in an even more streamlined and user friendly manner. There are plans to develop tools similar to the previously mentioned ones in a NPS intranet web based context.

• This will potentially reach a wider audience, as many of our NPS units are not available on Web Soil Survey.

• The ultimate goal is to provide easy access to all of the available soils data to NPS Staff.