

How to Find Information on Soils

Soils Maps – Soil Mapping and Taxonomic Units – Descriptions

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Introduction

- The purpose of this paper is to help obtain soil maps, identify soil mapping and taxonomic units, and find information on the chemical, physical, and management-related properties of those soils. Soil, along with climate, is the main determinant of other resource characteristics such as type and amount of vegetation, hydrologic properties, erosion hazards, nutrient supply and other factors that determine the potential of a particular area and how it can be managed.
- This paper uses some technical terms used in describing and mapping soils. (If the reader is unfamiliar with this terminology it is described in other fact sheets on this website). One concept that is essential to understand when using soil maps or looking for soil survey information is the distinction between a soil taxonomic unit and a soil mapping unit.

A **soil taxonomic unit** is the name given a particular soil based on characteristics that distinguish it from other soils in a classification system. Soils are classified in a hierarchical system ranging from soil orders at the most general level to the soil series at the most specific level. In this discussion the **soil series** will be the taxonomic unit used.

Soil mapping units are areas drawn on a soil map (polygons) which include the same soil taxonomic units or patterns of taxonomic units. Depending on the scale of the map and the complexity of the landscape it is often not possible to delineate soil mapping units which are composed entirely of one taxonomic unit. Most soil mapping units allow up to about 15% of other taxonomic units, or other components such as rock outcrops, as “inclusions” which are not included in the mapping unit name.

The important lesson from this that just because you are standing on an area mapped as soil series X does not necessarily mean that applies to the spot you are on. **You have to identify the soil taxonomic unit, or ecological site, by looking at the soil characteristics.**

Each soil mapping unit in a soil survey area is identified by a number or a symbol (e.g., Whl) for that soil survey area. Although the same mapping unit may occur in another soil survey area, it will have a different number. For example, Whitehouse-Caralampi complex may be labelled as soil mapping unit #20 in one survey but may be #35 in an adjacent survey. But the descriptions will be the same in both surveys.

There is a **unique number** given to each soil mapping unit in the U.S. called a “map unit key” (MUKEY). That number can be used to look up information on the soil mapping units, but for most management planning the number used in the soil survey of interest is the one to use.

For purposes of developing resource management plans for a conservation district, ranch, farm or other unit, there are three types of data you might want depending on the situation.

- One is a soil map showing the soil mapping units.
- The second is to identify the soil mapping units that occur in your area of interest, identify which soil taxonomic units are included in each mapping unit, and to obtain estimates of the acreage of each mapping unit.
- The third is to obtain information on the properties of each soil taxonomic unit in your area of interest.

There are several different sources of soil maps and descriptions available. Each of these will be described here.

Depending on your needs some may be more useful and/or convenient than others. The status of soil surveys is shown on the following map. The following map and list accompanying it show the number of each soil survey in Arizona. Note that soil surveys on national forest lands are not included in the SSURGO data base and soil surveys on national forest lands are not available through the Cooperative Soil Survey.

The map and list are dated 2011 and may not reflect some recent additions and/or revisions of soil surveys – these can be found online.

SOIL SURVEY AREAS

| Soil Survey Area Name | Approximate Area (Acres) |
|--|-----------------------------|
| NV608 Virgin River Area, NV-AZ, Parts of Clark and Lincoln Counties, NV and Part of Mohave County, AZ | 1,068,616 *9 |
| NM618 San Juan County, New Mexico, Eastern Part | 315,800 *6,*11 |
| AZ623 Shivwits Area, AZ, Part of Mohave County | 1,547,000 |
| AZ625 Mohave County Area, AZ, Northeastern Part and Part of Coconino County | 1,038,145 |
| AZ627 Mohave County, AZ, Southern Part | 2,492,300 |
| AZ629 Coconino County Area, AZ, North Kaibab Part | 697,780 |
| AZ631 Coconino County Area, AZ, Central Part | 2,314,000 |
| AZ633 Navajo County Area, AZ, Central Part | 1,504,900 |
| AZ635 Apache County, AZ, Central Part | 2,113,800 |
| AZ637 Yavapai County, AZ, Western Part | 3,774,500 |
| AZ639 Black Hills-Sedona Area, AZ, Parts of Coconino and Yavapai Counties | 824,500 *10 |
| AZ641 Beaver Creek Area, AZ | 302,205 |
| AZ643 Long Valley Area, AZ | 626,623 |
| UT643 Navajo Indian Reservation, San Juan County, Utah | 1,336,185 *7,*11 |
| AZ645 Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, AZ | 1,629,120 |
| AZ646 Organ Pipe Cactus National Monument | 330,689 |
| AZ647 Luke Air Force Range, AZ, Parts of Maricopa, Pima and Yuma Counties | 1,940,000 |
| AZ648 Cabeza Prieta Area, AZ, Parts of Pima and Yuma Counties | 909,311 |
| AZ649 Yuma-Wellton Area, Parts of Yuma County, AZ, and Imperial County, CA | 1,042,429 *1 |
| AZ651 Maricopa County, AZ, Central Part | 1,076,330 |
| AZ653 Gila Bend-Ajo Area, AZ, Parts of Maricopa and Pima Counties | 1,432,320 |
| AZ655 Eastern Maricopa and Northern Pinal Counties Area, AZ | 348,025 |
| AZ656 Colorado River Indian Reservation, Parts of La Paz County, AZ, and Riverside and San Bernardino Counties, CA | 268,850 *2 |
| AZ657 Kofa Area, AZ, Parts of La Paz and Yuma Counties | 3,806,931 |
| AZ658 Gila River Indian Reservation, AZ, Parts of Maricopa and Pinal Counties | 371,913 |
| AZ659 Pinal County, AZ, Western Part | 937,020 |
| AZ661 Eastern Pinal and Southern Gila Counties, AZ | 1,699,900 |
| AZ662 Safford Area, AZ | 208,500 |
| AZ663 Gila-Duncan Area, AZ, Parts of Graham and Greenlee Counties | 770,000 |
| AZ664 San Simon Area, AZ, Parts of Cochise, Graham and Greenlee Counties | 1,220,996 |

| Soil Survey Area Name | Approximate Area (Acres) |
|---|-----------------------------|
| AZ665 Willcox Area, AZ, Parts of Cochise and Graham Counties | 367,370 |
| AZ666 Cochise County, AZ, Northwestern Part | 625,000 |
| AZ667 Santa Cruz and Parts of Cochise and Pima Counties, AZ | 1,098,300 |
| AZ668 Tucson-Avra Valley Area, AZ | 214,100 |
| AZ669 Pima County, AZ, Eastern Part | 1,900,000 |
| AZ671 Cochise County, AZ, Douglas-Tombstone Part | 1,714,300 |
| AZ673 Graham County, AZ, Southwestern Part | 410,000 |
| AZ675 San Carlos Indian Reservation, AZ, Parts of Gila and Graham Counties | 1,827,421 |
| AZ683 Fort Apache Indian Reservation, AZ, Parts of Apache, Gila and Navajo Counties | 1,664,972 |
| UT689 Glen Canyon National Recreation Area | 1,254,306 *12 |
| AZ687 Tonto National Forest, AZ, Parts of Gila, Maricopa, Pinal and Yavapai Counties | 2,873,295 *10 |
| AZ691 Apache-Sitgreaves National Forests, AZ, Parts of Apache, Coconino, Greenlee and Navajo Counties | 2,112,320 *10 |
| AZ693 Oak Creek-San Francisco Peaks Area, AZ, Part of Coconino County | 859,000 *10 |
| AZ695 Kaibab National Forest, AZ, Parts of Coconino, Mohave and Yavapai Counties | 1,554,797 *10 |
| AZ697 Mohave County, AZ, Central Part | 2,431,200 |
| AZ699 Hualapai-Havasupai Area, AZ, Parts of Coconino, Mohave and Yavapai Counties | 1,180,540 |
| AZ701 Grand Canyon Area, AZ, Parts of Coconino and Mohave Counties | 1,450,620 |
| AZ703 Tohono O'odham Nation, AZ, Parts of Maricopa, Pima and Pinal Counties | 2,855,032 |
| AZ707 Little Colorado River Area, AZ, Parts of Coconino and Navajo Counties | 2,240,000 *11 |
| AZ711 Navajo Mountain Area, AZ, Parts of Apache, Coconino, and Navajo Counties | 2,553,933 *11 |
| AZ712 Canyon de Chelly National Monument, AZ | 94,255 *11 |
| AZ713 Chinle Area, Parts of Apache and Navajo Counties, AZ, and San Juan County, NM | 1,930,000 *3,*11 |
| AZ714 Hopi Area, AZ, Parts of Coconino and Navajo Counties | 1,561,054 |
| AZ715 Fort Defiance Area, Parts of Apache and Navajo Counties, AZ, and McKinley and San Juan Counties, NM | 3,210,000 *4,*11 |
| NM717 Shiprock Area, Parts of Apache County, AZ and San Juan County, NM | 1,835,230 *5,*11 |
| AZ723 Coronado National Forest, AZ, Parts of Cochise, Graham, Pima and Pinal Counties | 1,090,135 *10 |
| Total: | 78,761,613 *8 |

*1 Total includes 24,817 acres from Imperial County, CA

*2 Total includes 26938 acres from San Bernardino County, CA and 16,000 acres from Riverside County, CA

*3 Total includes 12,200 acres from San Juan County, NM

*4 Bureau of Indian Affairs has responsibility for this area. Total includes 227,000 acres from San Juan County, NM and 549,240 acres from McKinley County, NM

*5 NRCS New Mexico has responsibility for this area. Total includes 780,430 acres from Apache County, AZ

*6 NRCS New Mexico has responsibility for this area. All acres are in San Juan County, NM

*7 NRCS Utah has responsibility for this area. All acres are in San Juan County, UT

*8 Total includes 67,753 acres from California, 2,159,040 acres from New Mexico, 2,590,491 acres from Utah, 72,960,038 acres from Arizona, and 1,031,068 acres from Nevada

*9 NRCS Nevada has responsibility for this area. Total includes 37,548 acres from Arizona

*10 U.S. Forest Service has responsibility for this area

*11 Part of the Navajo Nation

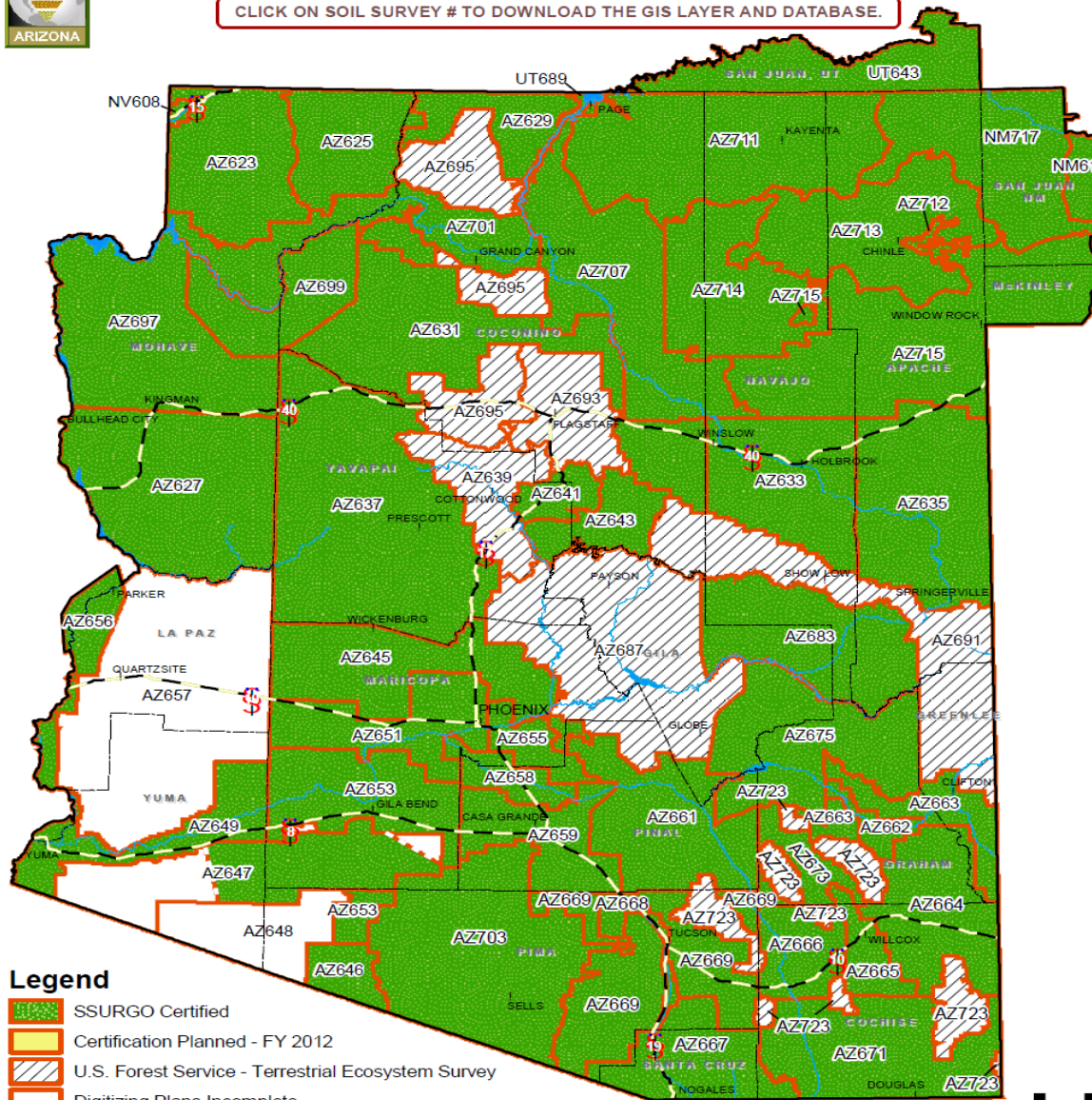
*12 NRCS Arizona has responsibility for mapping this area. Total includes 46,777 acres from Arizona



STATUS OF SSURGO CERTIFIED SOIL SURVEYS

SOIL SURVEY PROGRAM - ARIZONA

CLICK ON SOIL SURVEY # TO DOWNLOAD THE GIS LAYER AND DATABASE.



Legend

- SSURGO Certified
- Certification Planned - FY 2012
- U.S. Forest Service - Terrestrial Ecosystem Survey
- Digitizing Plans Incomplete
- County Boundary

October 2011



Hard Copy Soil Survey Reports

Earlier soil surveys were produced in a printed report which could be obtained from the NRCS. These reports described the general characteristics of the survey area, the soil taxonomic units (series), soil mapping units, and gave extensive tables of characteristics of each soil or mapping unit, such as vegetation, chemical and physical properties, suitability for various uses, etc. They also contained paper maps of the entire survey area.

On rangelands, these were usually 1:24000 scale maps on black and white aerial photo base. Most of these older surveys have been digitized and are now available online. There are still some hard copies in some of the NRCS offices which you might be able to obtain or borrow if needed.

The main advantage of these old surveys is the maps that you can take to the field with you to help identify the mapping unit you are in. You can even draw on them if you want. These maps can be obtained online of course through the AACD ConserveAZ Portal, Web Soil Survey, Soil Web, or Google Earth (as described below) which is much easier than dealing with paper maps. But sometimes it is useful, especially when planning specific projects to have an actual paper map to work with.

SOIL SURVEY OF SAN SIMON AREA, ARIZONA PARTS OF COCHISE, GRAHAM, AND GREENLEE COUNTIES



United States Department of Agriculture
Soil Conservation Service
in cooperation with
Arizona Agricultural Experiment Station

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Issued September 1980

The Web Soil Survey (<https://websoilsurvey.nrcs.usda.gov/app/>) is the most complete source for all kinds of soil maps and data. It is easy to learn how to use with the tutorials and explanations that can be found on the website. Another training tool can be found on the AACD website.

There is no need to go into detail on how to access and use this website because it does a good job of explaining this itself. So only a few things will be pointed out here.



You are here: Web Soil Survey Home

- Search
- Enter Keyword
- All NRCS Sites
- Browse by Subject
- Soils Home
 - National Cooperative Soil Survey (NCSS)
 - Archived Soil Surveys
 - Status Maps
 - Official Soil Series Descriptions (OSD)
 - Series Extent Explorer
 - Geospatial Data Gateway
 - eFOTG
 - National Soil Characterization Data
 - Soil Health
 - Soil Geography

The simple yet powerful way to access and use soil data.



Welcome to Web Soil Survey (WSS)



Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

Soil surveys can be used for general farm, local, and wider area planning. Onsite investigation is needed in some cases, such as soil quality assessments and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center at the following link: [USDA Service Center](#) or your NRCS State Soil Scientist at the following link: [NRCS State Soil Scientist](#).

Four Basic Steps

I Want To...

- Start Web Soil Survey (WSS)
- Know Web Soil Survey Requirements
- Know Web Soil Survey operation hours
- Find what areas of the U.S. have soil data
- Find information by topic
- Know how to hyperlink from other documents to Web Soil Survey
- Know the SSURGO data structure
- Use Web Soil Survey on a mobile device

Announcements/Events

- Web Soil Survey 3.4.0 has been released! [View Web Soil Survey release history](#)
- [Sign up for e-mail](#)

This is the home page for WSS. You can access other data directly from this page. For example:

1. You can find a list of all current soil surveys by state under "Archived Soil Surveys".
2. You can find a description of each recognized soil series (taxonomic unit) if you know the name of it.

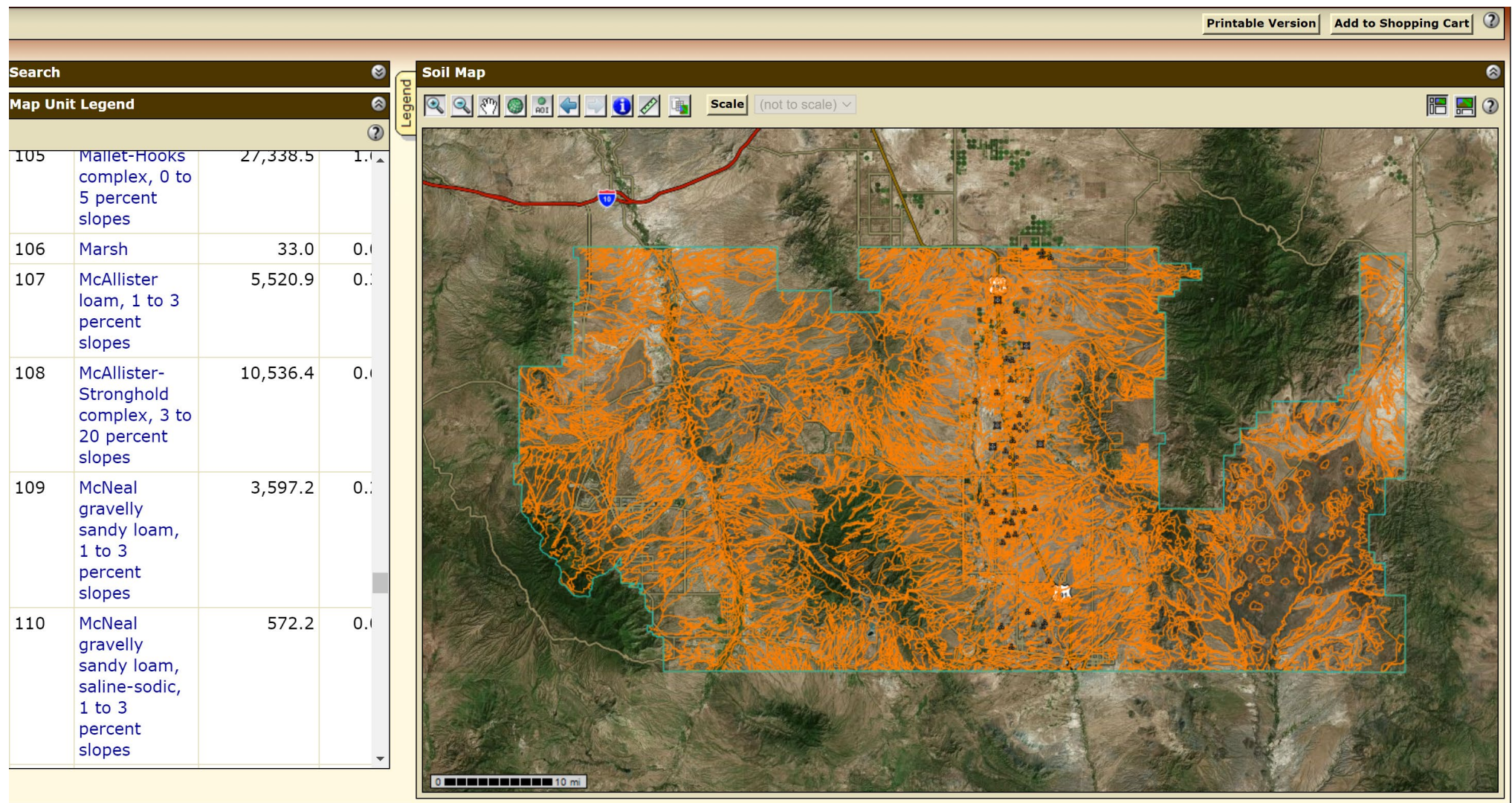
Areas of Interest

To obtain soil maps and other information about soils for a particular area, it is necessary to designate an Area of Interest (AOI) in WSS. There are several ways to do it.

1. You can draw a rectangle that includes your planning area directly on the map, or you can form an irregular polygon that follows the boundary of your planning area.
2. You can import a shapefile (GIS) that has the boundaries of the area you are interested in.
3. You can select an entire soil survey from a list on the website that contains all or part of your area of interest.

The first two methods are better because they restrict the map and data produced to your planning area. However, there is a limit of 100,000 acres for this approach, so it may not be useful for District wide or watershed level AOIs.

The third method can cover larger areas, but they may not match your planning area, i.e. there may be parts of your planning area in more than one soil survey.



FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | USA.gov | White House

Soil map of a soil survey in the Tombstone area. This survey covers over 1.5 million acres. The soil mapping units are listed by number and name in the legend to the left. The acreage of each is given and the percentage of the survey area that each makes up. You can print out the map and it has general information for each soil mapping unit. At this scale the map is difficult to interpret because there are so many mapping units that it is impossible to label each or have a different color for each.

Search

Suitabilities and Limitations Ratings

Open All Close All

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications

Land Management

- Chaining Suitability
- Construction Limitations for Haul Roads and Log Landings
- Erosion Hazard (Off-Road, Off-Trail)
- Erosion Hazard (Road, Trail)
- Fencing
- Fencing, Post Depth 24 Inches or Less
- Fencing, Post Depth 36 Inches or Less
- Fire Damage Susceptibility
- Fugitive Dust Resistance
- Ground Penetrating Radar Penetration
- Harvest Equipment Operability
- Mechanical Site Preparation (Deep)
- Mechanical Site Preparation (Surface)
- Mechanical Treatment, Rolling Drum

Mechanical Treatment, Shredder

View Description View Rating

View Options

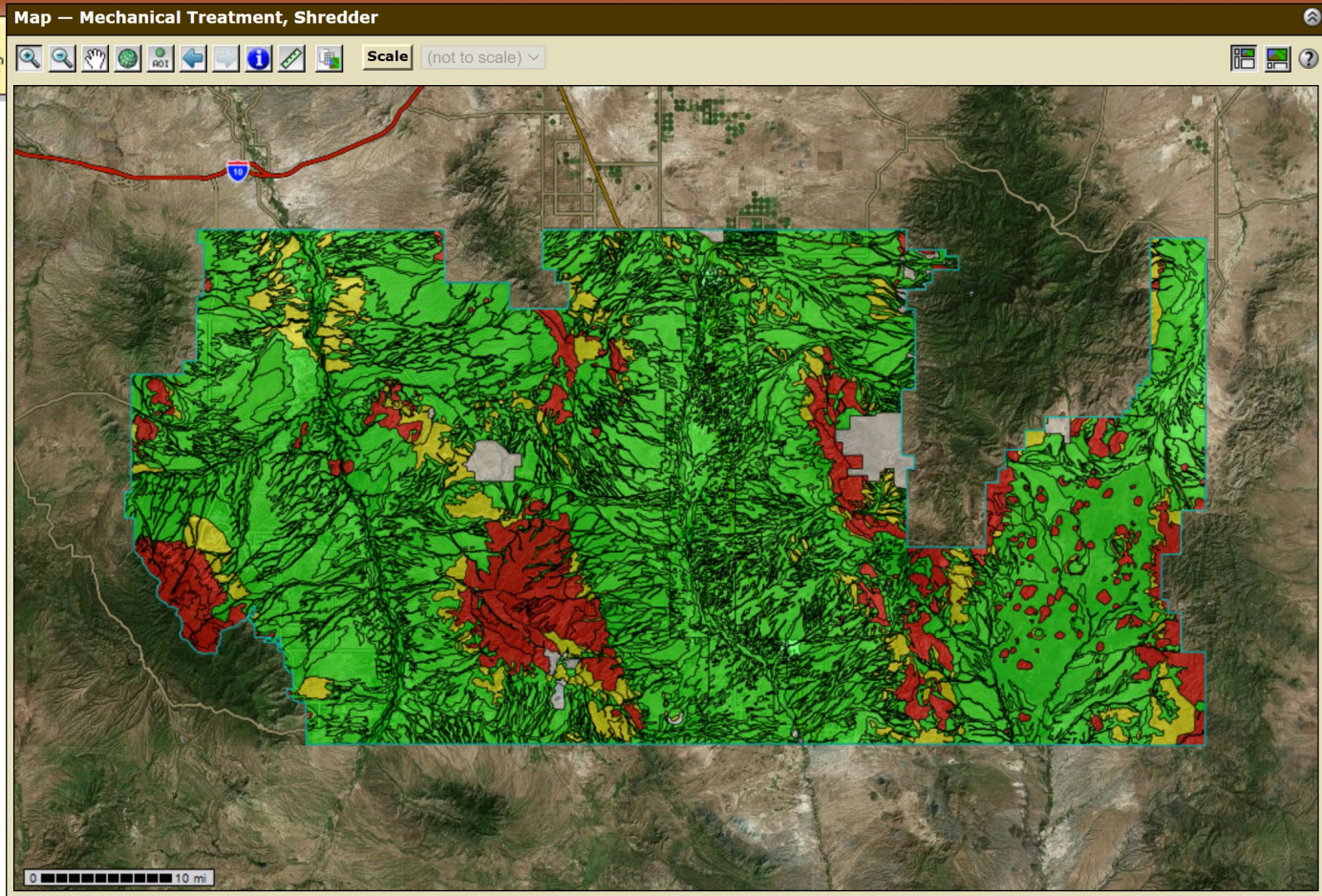
Map

Table

Component Breakdown and Rating Reasons

Numeric Values

Description of



Tables — Mechanical Treatment, Shredder — Summary By Map Unit

Summary by Map Unit — Cochise County, Arizona, Douglas-Tombstone Part (AZ671)

Summary by Map Unit — Cochise County, Arizona, Douglas-Tombstone Part (AZ671)

| Map unit | Map unit name | Rating | Component name | Rating reasons | Acres in AOT | Percent of |
|----------|---------------|--------|----------------|----------------|--------------|------------|
|----------|---------------|--------|----------------|----------------|--------------|------------|


For each mapping unit, there are several kinds of information available. “Suitabilities and Limitations” refers to interpretations of soil attributes for specific uses or management. Selecting one of the categories produces a dropdown list as shown here for “land management”. The suitability selected is “Mechanical Treatment, Shredder.” You can get a description of how the soil is rated for this purpose and produce a map of the rating for each soil mapping unit.

| | complex, 3 to 45 percent slopes | suited | Chiricahua (30%) | Slope (0.86) | | |
|-----|---|-------------------|---|--------------|----------|------|
| 102 | Mabray-Rock outcrop complex, 3 to 45 percent slopes | Moderately suited | Mabray (60%) | Slope (0.86) | 37,799.7 | 2.2% |
| 103 | Magoffin-Rock outcrop-Cherrycow complex, 0 to 15 percent slopes | Well suited | Magoffin (40%) Cherrycow (20%) | | 2,177.7 | 0.1% |
| 104 | Major complex, 0 to 5 percent slopes | Well suited | Major, fine sandy loam (41%) Major, silt loam (40%) | | 30,234.8 | 1.8% |
| 105 | Mallet-Hooks complex, 0 to 5 percent slopes | Well suited | Mallet (45%) Hooks (35%) | | 27,338.5 | 1.6% |
| 106 | Marsh | Not rated | Marsh (100%) | | 33.0 | 0.0% |
| 107 | McAllister loam, 1 to 3 percent slopes | Well suited | McAllister (90%) | | 5,520.9 | 0.3% |
| 108 | McAllister-Stronghold complex, 3 to 20 percent slopes | Well suited | McAllister (50%) Stronghold (30%) | | 10,536.4 | 0.6% |
| 109 | McNeal gravelly sandy loam, 1 to 3 percent slopes | Well suited | McNeal (85%) | | 3,597.2 | 0.2% |
| 110 | McNeal gravelly sandy loam, saline-sodic, 1 to 3 percent slopes | Well suited | McNeal, saline-sodic (85%) | | 572.2 | 0.0% |
| 111 | Monzingo-Ugyp complex, 1 to 20 percent slopes | Well suited | Monzingo (55%) Ugyp (15%) Ugyp (10%) | | 5,183.5 | 0.3% |
| 112 | Naco-Ruins soils complex, 1 to 5 percent slopes | Well suited | Naco (36%) Ruins, thick surface (35%) Ruins (20%) | | 5,914.0 | 0.3% |
| 113 | Nolam-Libby-Buntline complex, 1 to 10 percent slopes | Well suited | Nolam (40%) Libby (25%) Buntline (20%) | | 36,579.7 | 2.1% |
| 114 | Outlaw-Epiphany-Paramore complex, 0 to 15 percent slopes | Well suited | Outlaw (35%) Epiphany (25%) | | 95,547.9 | 5.6% |

This slide shows the rating for Mechanical Treatment, Shredding for each soil mapping unit in the survey area. Each SMU is rated as Well Suited, Moderately Suited, Poorly Suited, or Unrated for this practice. The rating is based mainly on slope and surface rock cover.

The area circled in yellow shows that SMR 108 McCallister – Stronghold complex is well suited. This rating is for the McCallister soil, because it is the dominant soil series in the SMU. The Stronghold soil may or may not be well suited. The rating can also be applied to the component which is “most limiting” if desired.

Natural Resources Conservation Service

Contact Us | Subscribe  | Archived Soil Surveys | Soil Survey

Area of Interest (AOI) | Soil Map | **Soil Data**

View Soil Information By Use: All Uses

Intro to Soils | Suitabilities and Limitations for U

Search

Properties and Qualities Ratings

Soil Chemical Properties

Soil Erosion Factors

Soil Health Properties

Soil Physical Properties

Soil Qualities and Features

Water Features

Legend

The menu above shows categories of soil characteristics that can be rated for each soil mapping unit in your AOI. For example, under Soil Chemical Properties there will be dropdown list of such things as cation exchange capacity, etc.

The menu at right shows the list of interpretations related to land management that can be assigned to each soil mapping unit and mapped with acreages in your AOI.

Land Management

Chaining Suitability

Construction Limitations for Haul Roads and Log Landings

Erosion Hazard (Off-Road, Off-Trail)

Erosion Hazard (Road, Trail)

Fencing

Fencing, Post Depth 24 Inches or Less

Fencing, Post Depth 36 Inches or Less

Fire Damage Susceptibility

Fugitive Dust Resistance

Ground Penetrating Radar Penetration

Harvest Equipment Operability

Mechanical Site Preparation (Deep)

Mechanical Site Preparation (Surface)

Mechanical Treatment, Rolling Drum

Mechanical Treatment, Shredder

Medusahead Invasion Susceptibility

Pesticide Leaching Potential

Pesticide Runoff Potential

Potential for Damage by Fire

Potential for Seedling Mortality

Pygmy Rabbit Habitat Potential

Rangeland Drill

Rangeland Seeding, Colorado Plateau Ecoregion

Rangeland Seeding, Great Basin Ecoregion

Rangeland Tillage

Shortleaf pine littleleaf disease susceptibility

Site Degradation Susceptibility

Soil Compactibility Risk

Soil Compaction Resistance

Soil Displacement Hazard

Soil Habitat for Coccidioides

Soil Puddling Hazard

Soil Restoration Potential

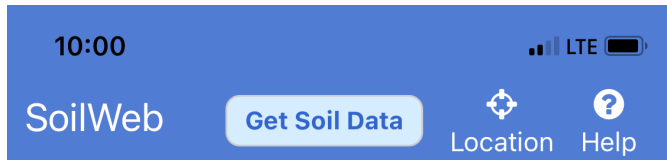
Soil Web

Soil Web is an app that you can download on your cell phone – depending on which brand and model it is. This app was developed by the University of California at Davis for the NRCS. It can be downloaded in the app store on your phone. <https://apps.apple.com/us/app/soilweb/id354911787>

The app uses the GPS capability of your phone to identify where you are and how the soil mapping unit at your location is classified.

It is a very useful tool for anyone that is doing field work, providing you have a phone signal.

This app can tell you which soil series are found in the mapping unit you are standing on in the field, but you must verify which soil series or other component you are actually on by field observations, including possibly digging a pit.



Welcome

The SoilWeb App simplifies the process of querying and exploring USDA-NRCS detailed soil survey data (SSURGO) at your current location.

Getting Started

Tap the "Get Soil Data" button to view the detailed soil survey data for your current location. If prompted, be sure to give SoilWeb permission to access your location.

About

This app was developed by the California Soil Resource Lab at UC Davis in collaboration with the USDA-NRCS.

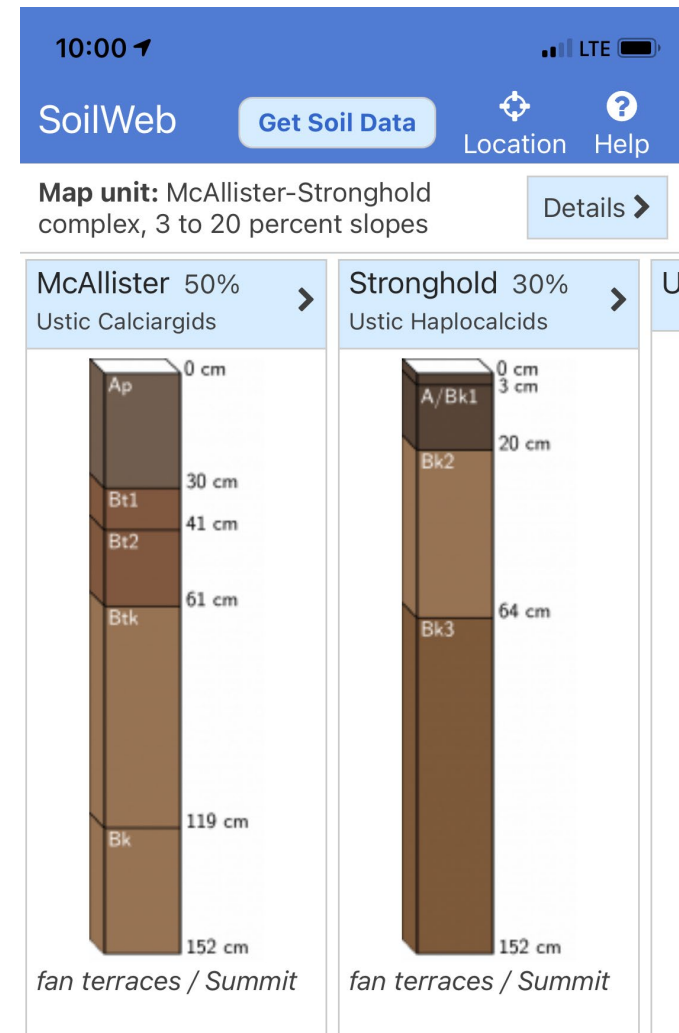
Web Links

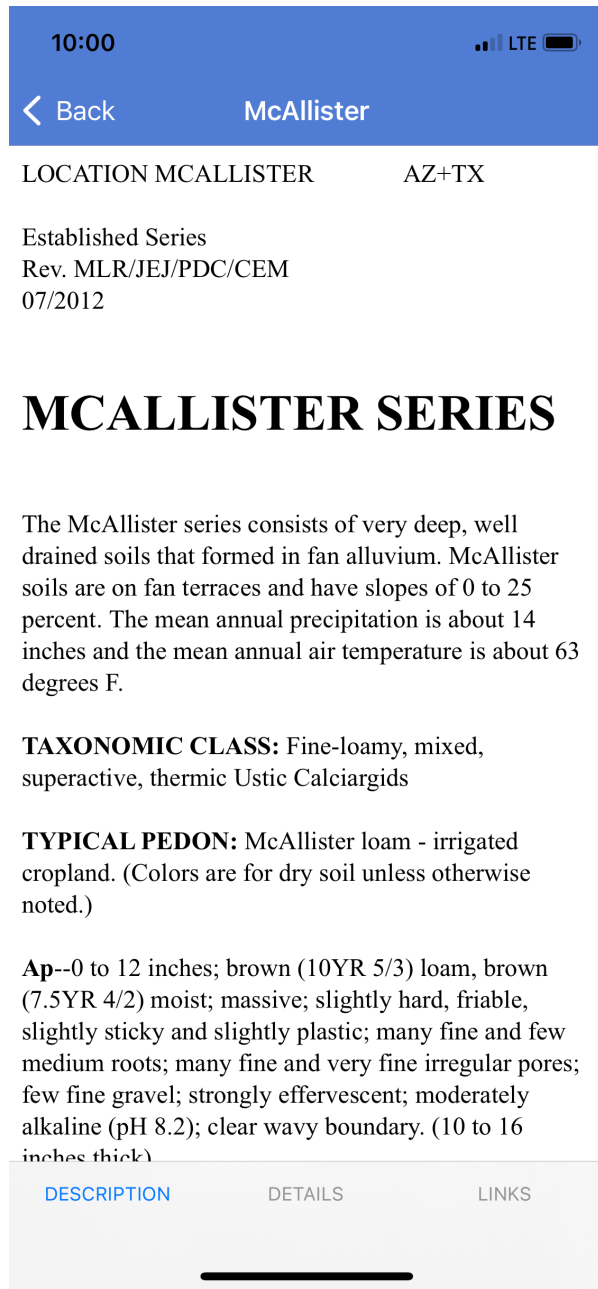
[Description of the SSURGO database](#)

[USDA-NRCS soils home page](#)

[Other applications available from the California Soil Resource Lab](#)

When you open the Soil Web app in the field you will see the page at the left. Selecting “get soil data” will produce the screen at the right which is the name and profile profile of the soil series in the soil mapping unit you are located in. It also shows the estimated percentage of each soil series in the mapping unit.





Selecting the Mc Callister Series on the screen show on the previous slide will bring up a complete description of this soil series. The picture at left shows a portion of this description. By scrolling down, more information will be found, including some information on vegetation.

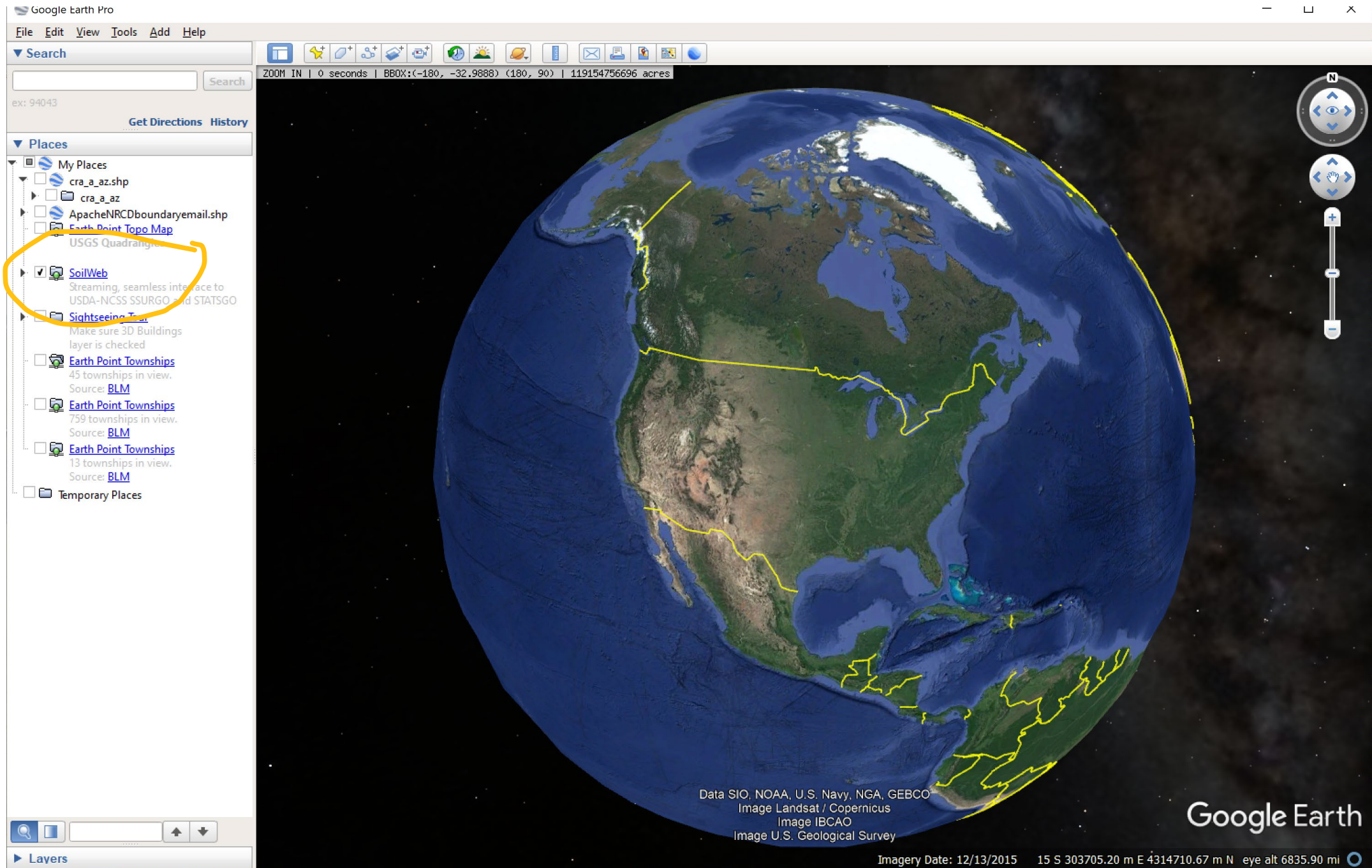
Previous versions of Soil Web also showed ecological site information, but this is not included in the current version.

Google Earth

Google Earth is another source of information about soils. Google Earth has a SoilWeb interface that is linked to the NRCS soils data base. You can add this app to your Google Earth by going to the UC Davis website and downloading it. <https://casoilresource.lawr.ucdavis.edu/soilweb-apps/>

Google Earth shows two levels of soil mapping. One is the general soil map which is used a broader scales and is linked to the USDA STATSGO data base. The other is the more detailed mapping used in standard soil surveys and linked to SSURGO data base. These maps show up at different zoom levels in Google Earth. By clicking on a mapping unit, you get a pop up that identifies the mapping unit and its components with diagrams of the soil profiles. From that you can also link to the extensive information on the soils in that mapping unit. You can print the Google Earth Maps also.

Google Earth also provides a link to the ecological site description with lists of plant species and production expected on that ecological site.



▼ Search

Search

ex: 94043

Get Directions History

▼ Places

- My Places
 - cra_a_az.shp
 - cra_a_az
 - ApacheNRCDBoundaryemail.shp
 - Earth Point Topo Map
 - USGS Quadrang...
 - SoilWeb**
Streaming, seamless interface to USDA-NCSS SSURGO and STATSGO
 - Sightseeing Tour
 - Earth Point Townships
45 townships in view.
Source: BLM
 - Earth Point Townships
759 townships in view.
Source: BLM
 - Earth Point Townships
13 townships in view.
Source: BLM
- Temporary Places



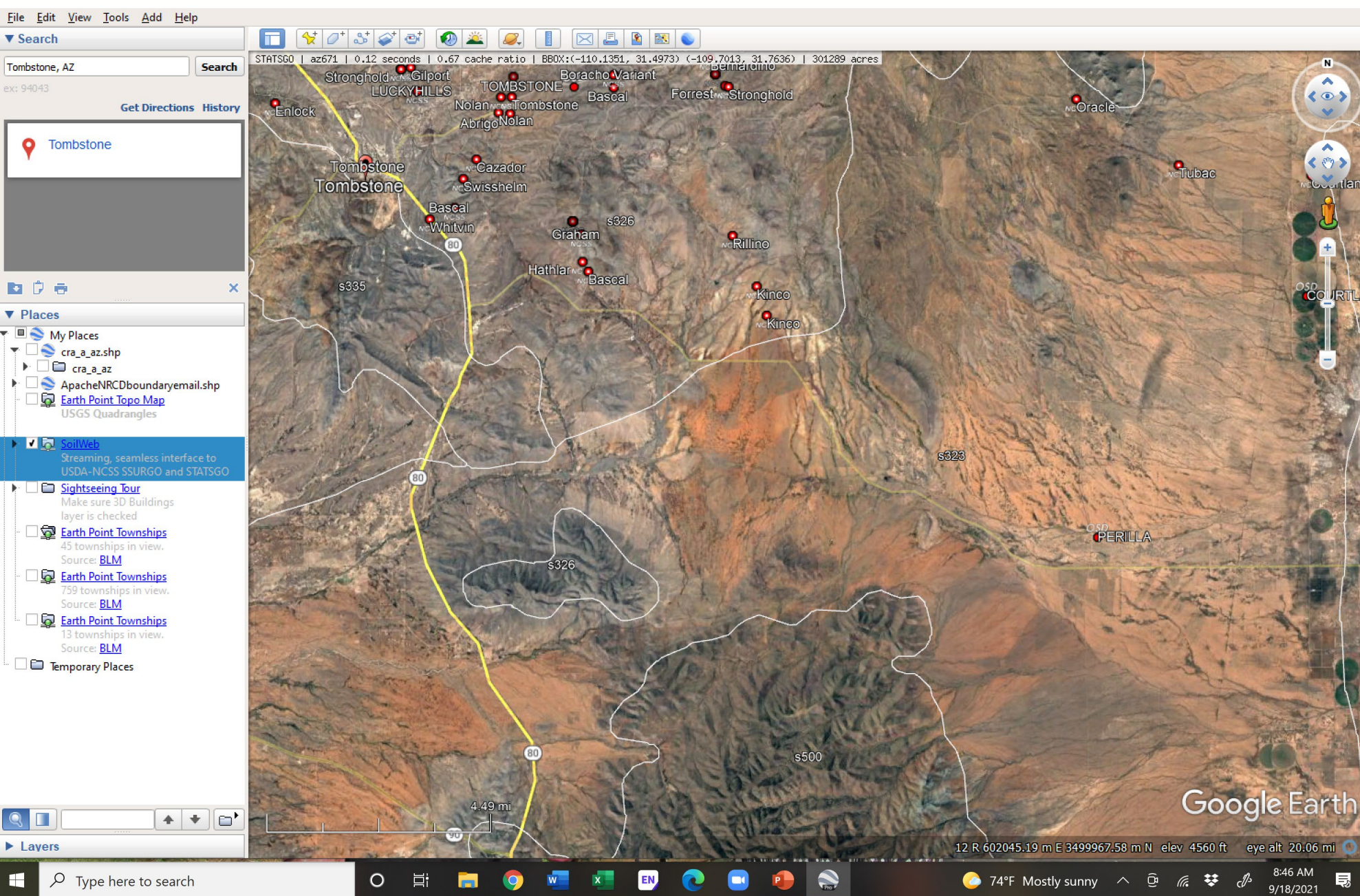
This shows the Google Earth home page with the Soil Web app circled in yellow.

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image IBCAO
Image U.S. Geological Survey

Google Earth

Imagery Date: 12/13/2015 15 S 303705.20 m E 4314710.67 m N eye alt 6835.90 mi





For large areas a general soil map can be prepared – white lines. This level of mapping just defines broad areas of complexes of soils. It may be useful in some planning involving a large area, i.e., MLRAs. Counties, Conservation Districts, watersheds, etc. but does not provide very specific data for planning.

Search Tombstone, AZ

STATSGO | az671 | 0.12 seconds | 0.67 cache ratio | BBOX:(-110.1351, 31.4973) (-109.7013, 31.7636) | 301289 acres

STATSGO: **Tubac-Forrest-Enzian-Diaspar (s323)**
Components within map unit 658401

| Tubac (45%) Typic Paleargids | Forrest (35%) Ustic Calcargids | Enzian (10%) Ustic Haplargids | Diaspar (10%) Ustic Haplargids |
|---------------------------------|-----------------------------------|----------------------------------|-----------------------------------|
| A1 0 | A1 0 | A 0 | A 0 |
| A2 5 | A2 10 | BA 5 | BA 5 |
| A3 15 | Bt1 28 | Bt1 23 | Bt1 23 |
| Bt 28 | Bt2 41 | Bt2 71 | Bt2 71 |
| Bt 53 | Bt3 51 | 2Bt 104 | 3Bt 117 |
| Btk1 53 | Bt4 74 | 3C 117 | 3C 117 |
| Btk2 89 | 2Bk1 89 | | |
| Btk2 112 | 2Bk2 127 | | |
| 2C 152 | 2Bk3 152 | | |

Block Diagrams: [e/o NCSS Job Aids](#)
note that these diagrams may be from multiple survey areas

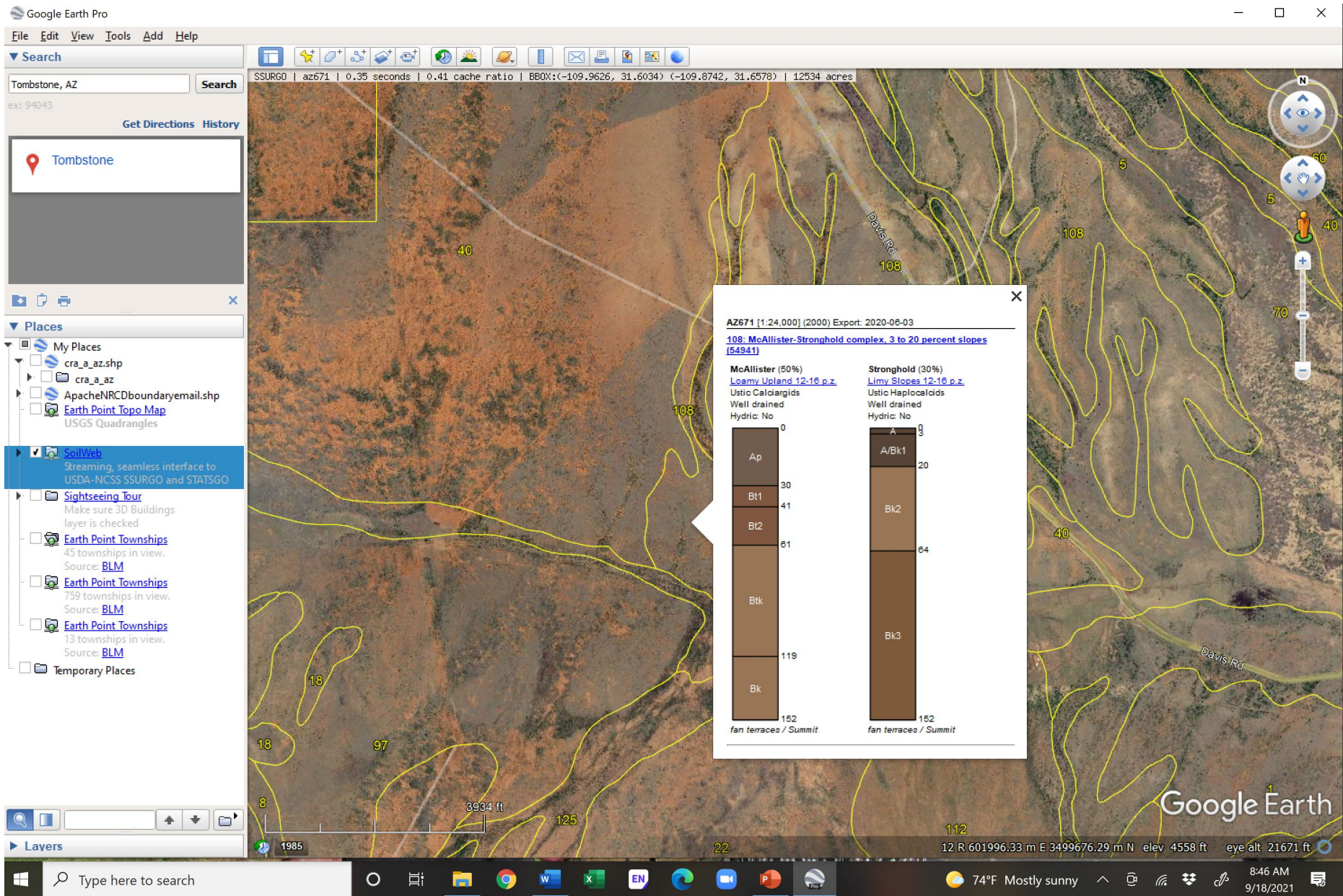
- [AZ-2011-05-27-30](#)
- [NM-2012-02-14-05](#)

Google Earth

Imagery Date: 5/4/2019 12 R 602572.38 m E 3500001.24 m N elev 4553 ft eye alt 20.06 mi

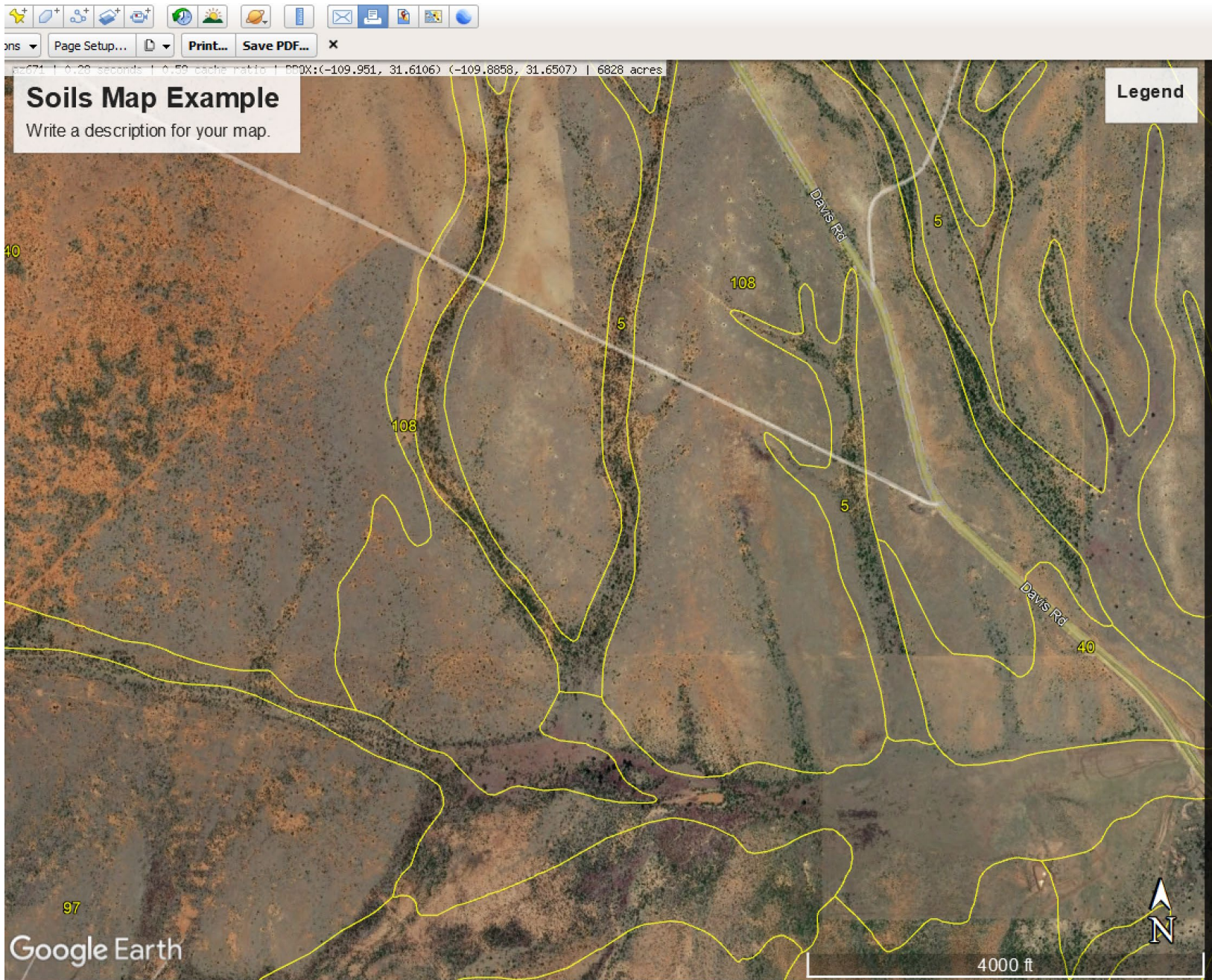
8:47 AM 9/18/2021

Clicking on one of the mapping units shown on the previous slide produces a pop up that identifies the major soil series within the mapping unit.



At a larger scale (zoom level) the mapping units are delimited by yellow lines and correspond to the standard soil survey delineations. The pop-up show which soil series are contained within each mapping unit. Selecting the blue headings will provide more information about these soils.

This mapping unit occurs within the general mapping unit shown on the previous slides but only makes up a small portion – these soils are not even mentioned in the pop up for the general map.



A map can be printed using Google Earth. This map can also have any waypoints, property boundaries, roads or other information which you have put on the map using Google Earth.

ConserveAZ Portal

The AACD ConserveAZ Portal has a section on soils with several layers. You can produce a map and download a report on these layers for any priority areas (AOI) you choose, e.g., a conservation district, a watershed, or any area you draw on the map. The soils section contains a layer which will produce a soil map of the entire AOI and will produce a report showing the acreage of each soil mapping unit in the AOI. It will also provide maps of some other soil features such as factors related to soil erosion, soil moisture holding capacity, etc. The information in the Portal will allow you to identify the soil mapping units in your AOI and to get some data on their characteristics. The main advantage to this is that the soils information will apply to the same AOI that you are using for other attributes, such as land ownership, vegetation, and other attributes. Some of the other sources described above may not have the information in a form that you can relate directly to your AOI. So, it is suggested that you start with the ConserveAZ Portal to identify the soil mapping units and relative importance of each within your AOI, then search for more detailed information on the important soils from other sources. (See Technical References beginning with a “B” for more information on how to use the Portal.)

Mapping Tools

Inventory Legend Identify

Basemaps

ConserveAZ

General Description

Land Use

Soils

Soil Mapping Units

Soil Restoration Potential

K Factor, Whole Soil

T Factor

Erosion Hazard Off-Road and Off-Trail

Erosion Hazard (Road, Trail)

Vegetation - Ecological Sites

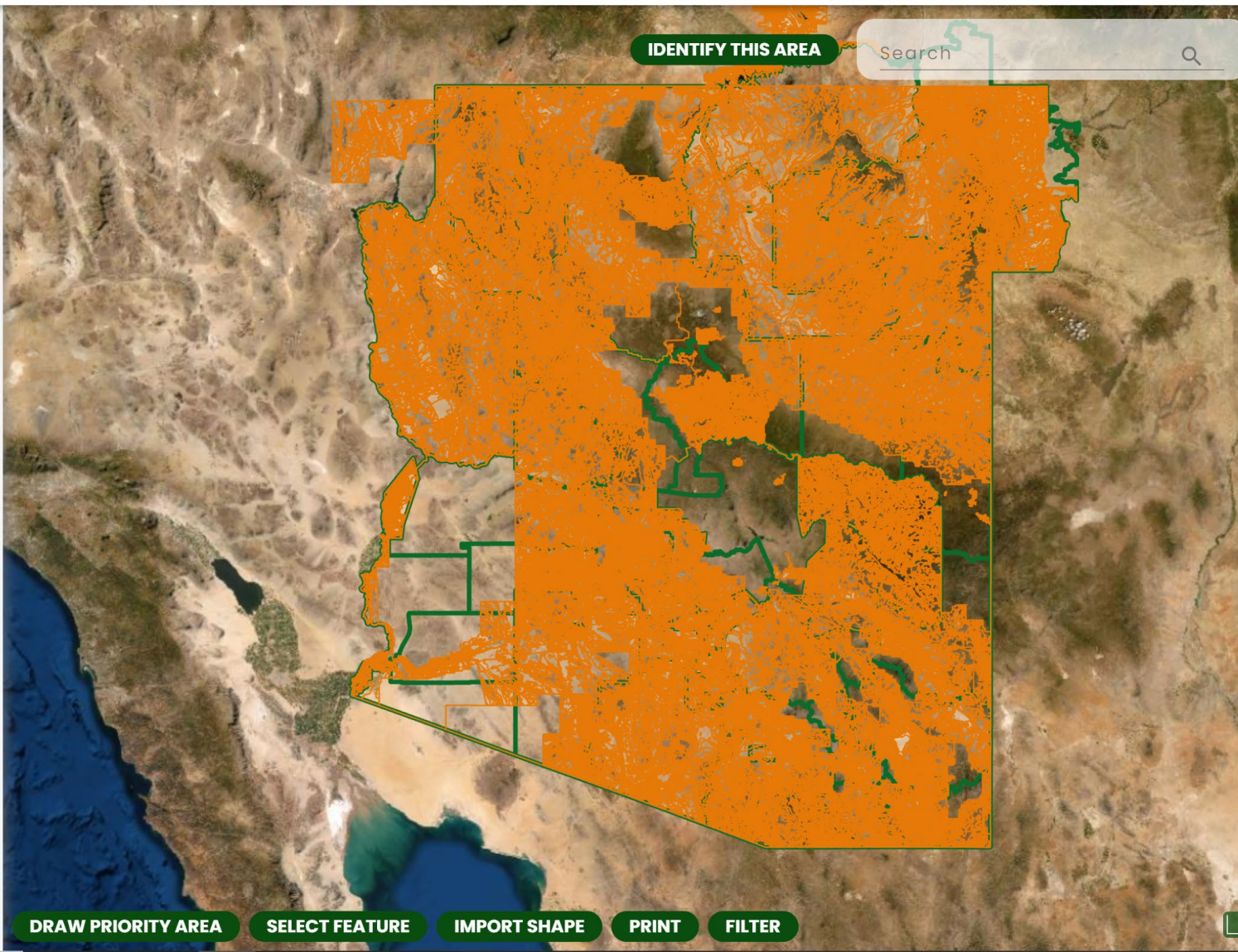
Watersheds - Hydrology

Wildlife and Sensitive Species

Wildfire

Restricted Use Areas

Resource Assessments



The screenshot shows soil mapping units in the ConserveAZ Portal for the whole state of Arizona. The areas that appear to solid orange, or nearly so, are the areas where SSURGO certified soil surveys exist. They appear to be solid colors but would show individual mapping units at higher zoom levels. The blank areas are those where SSURGO certified soil surveys do not exist – mostly on national forest lands. The national forests are covered by soil surveys but the data are not integrated into the NRCS system.



Mapping Tools

Inventory Legend Identify

Soil Mapping Unit Number:
AZ671-108
Soil Mapping Unit Name:
McAllister-Stronghold complex, 3 to 20 percent slopes

ZOOM TO

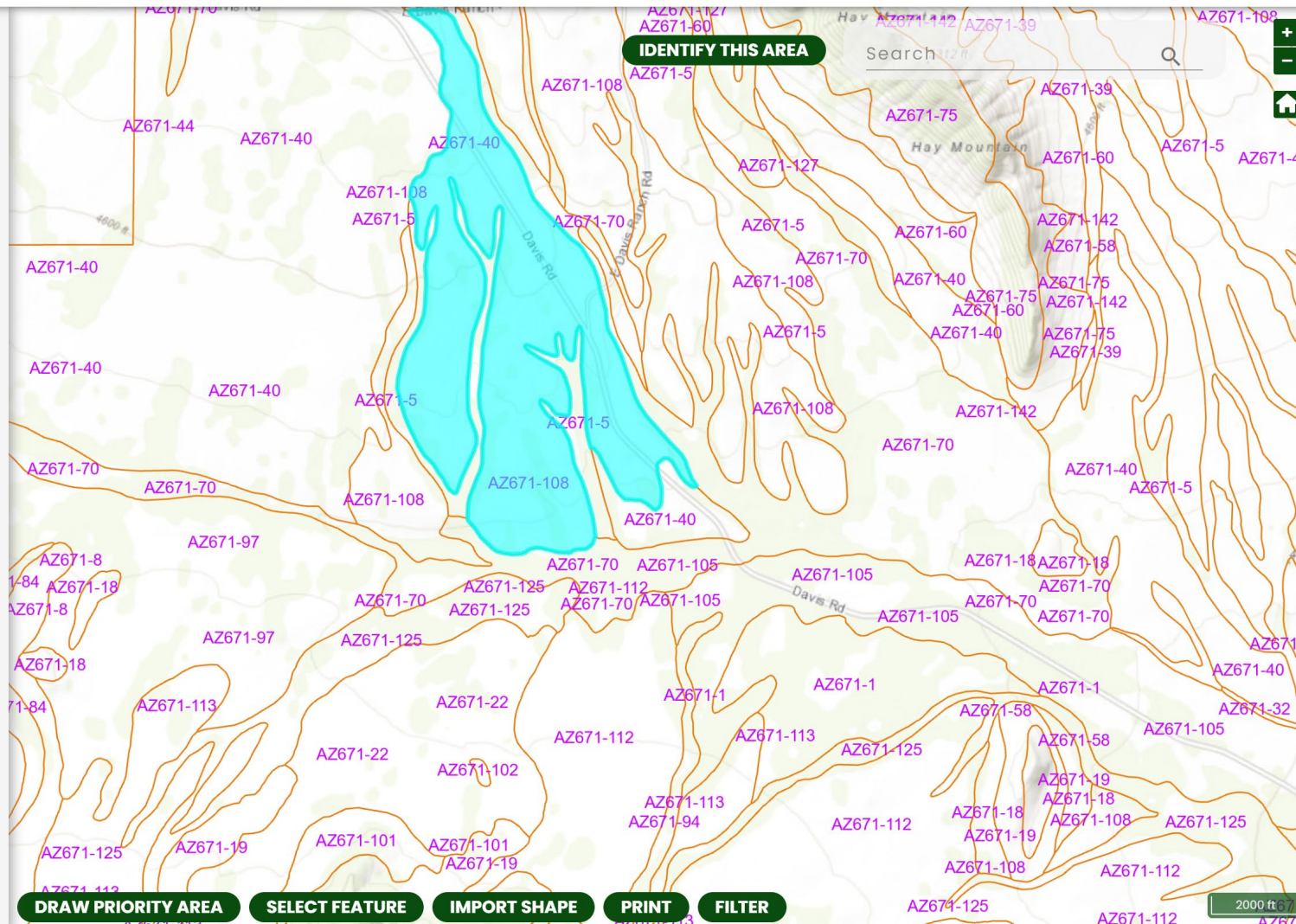
Soil Mapping Unit Number:
AZ671-40
Soil Mapping Unit Name:
Courtland-Sasabe-Diaspar complex, 1 to 8 percent slopes

ZOOM TO

Soil Mapping Unit Number:
AZ671-108
Soil Mapping Unit Name:
McAllister-Stronghold complex, 3 to 20 percent slopes

ZOOM TO

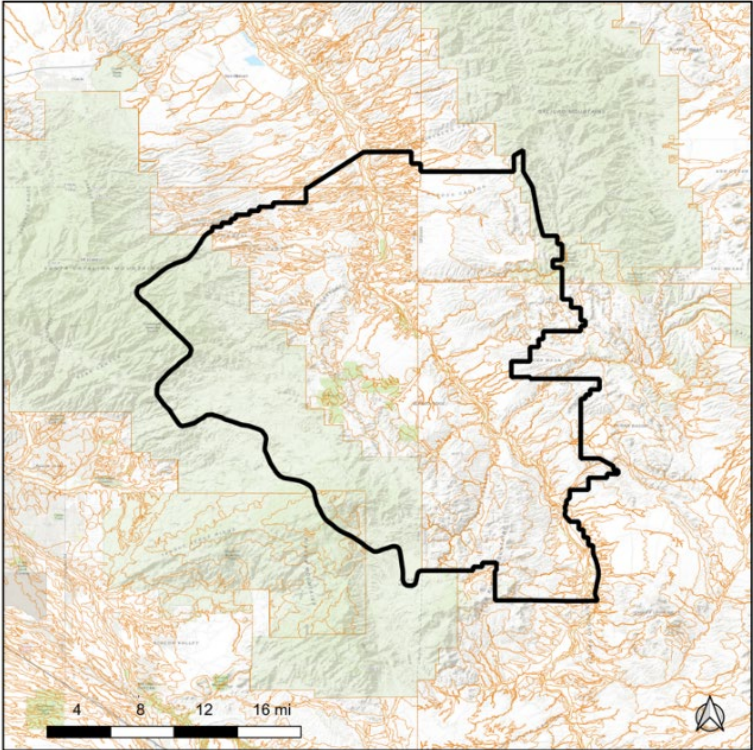
Soil Mapping Unit Number:
AZ671-40
Soil Mapping Unit Name:
Courtland-Sasabe-Diaspar complex, 1 to 8 percent slopes



Soil map on ConserveAZ Portal. At an appropriate zoom level, the soil survey number and soil mapping unit number are shown on the map using the “identify” feature. The Name of the soil mapping unit is shown in the blue box at left.

This feature can be used to identify the soil mapping unit number and the survey which includes it. These identifiers can then be used to obtain detailed soil information from WSS or the relevant soil survey document.

Soil Mapping Units



Soil mapping units are areas with similar patterns of soil series or other components. Several map polygons may be assigned to the same soil mapping unit. The map unit name includes the names of the soil series or other components within the unit and the general slope range. The percentage of each component within the unit is also given.

Soil Survey Area Symbol

Values in the below table are grouped by Soil Survey Area Symbol.

| | Total Acres | Source Acres Percent |
|--------------|----------------|----------------------|
| AZ666 | 101,798 | 35% |
| AZ609 | 82,931 | 29% |
| AZ723 | 68,517 | 24% |
| AZ673 | 28,772 | 10% |
| AZ601 | 6,209 | 2% |
| Total | 288,226 | 100% |

Map Unit Name

Values in the below table are grouped by Map Unit Name.

| | Total Acres | Source Acres Percent |
|--|-------------|----------------------|
| No Digital Data Available | 68,517 | 24% |
| Stagecoach-Pinaleno complex, sonoran, 15 to 60 percent slopes | 18,431 | 6% |
| Eloma-Kimrose-Saddlebrook complex, 1 to 60 percent slopes | 11,880 | 4% |
| Deloro-Andrada complex, 5 to 35 percent slopes | 11,434 | 4% |
| Mabray-Rock outcrop complex, 5 to 70 percent slopes | 9,756 | 3% |
| Delnorte-Nahda complex, 5 to 45 percent slopes | 9,236 | 3% |
| Powerline-Kimrose family complex, 10 to 35 percent slopes | 8,420 | 3% |
| Mabray-Deloro-Rock outcrop complex, 20 to 65 percent slopes | 8,137 | 3% |
| Redo very gravelly sand, 15 to 50 percent slopes | 7,014 | 2% |
| Stagecoach-Whitlock-Delnorte complex, chihuahuan, 5 to 20 percent slopes | 6,702 | 2% |
| Pedregosa-Tombstone complex, 5 to 45 percent slopes | 6,678 | 2% |

You can also print out a soil map of a priority area such as a ranch, watershed, conservation district or other planning area. The map to the right is of the Redington NRC.

The tables in the soil report will list the different soil surveys that cover the priority area (Redington) and give the acreage covered by each survey.

Another table will give the name and acreage of each soil mapping unit in the priority area. The screen shot at left shows a part of that table.

This map and tables will be in the Soil Report generated by the Portal and can be printed out for use in plans or other documents.

Advantages of Using the ConserveAZ Portal as a first step in identifying soil mapping units and surveys covering your priority area:

- A big advantage of using the ConserveAZ Portal for soil maps is that the map will match the boundaries of your planning area exactly even if the soil survey boundaries do not.
- Also, there is no limit on the size of the priority area as there is in WSS, so you can make a map of a whole conservation district or watershed no matter what the size of it. As stated previously, a soil map for a large area may be hard to interpret due to its complexity, but the acreage figures generated may be useful.