



Texas Soil Profiles

Meeting Information

Date – February 3th, 2016

Time – Social @ 5:30pm; Meeting @ 6:30 pm

Location – G Rollie White Visitor Center, 7707 Raymond Stotzer Parkway (Hwy 60), College Station, Texas

Meals – \$20.00

Other info – membership dues \$25 thanks for your due diligence

2015 PSSAT Officers

President – Sidney Paulson, USDA NRCS, Stephenville **President-Elect** – Jacob Eickstead, TRC, New Braunfels
Treasurer – Chance Robinson, USDA NRCS, Marfa **Editor** – Jamey Douglass, USDA NRCS, Temple
Past President – Amanda Bragg, USDA NRCS, San Angelo

President's Message from PSSAT President Sidney Paulson

Happy New Year! It has been an honor and privilege serving you as your President this year. I commend PSSAT members and officers for the cooperation and support. This organization is a credit to our profession. I was asked how my year as president went to which I replied "better than expected". Not meaning it as a negative, but that it is better than I could image. Thanks to all!

I don't mean to Bragg, but our past president Amanda Bragg did a very good job of providing a bold vision for the future of PSSAT. As president, my main objective was to advance those goals and continue their progression.

One of our accomplishments was our Fall Soils Field Tour in Stephenville. Thanks to Dr. McGahan and John Sackett for the great effort in making it a huge success. Although the weather did not cooperate, I appreciate the attendance and participation of our PSSAT members and guests. Below is the schedule for upcoming soil tours.

- Field tour
 - Feb. 2017 – Mine near College Station with annual PSSAT meeting
 - Fall 2017 – Marfa, Texas – with New Mexico soil scientists
 - Fall 2019 – San Antonio, Texas – paired with SSSA meeting

We have had much discussion about our scholarship application process. How can we encourage more qualified applicants? This year we received 4 applications. Two things that helped was the Fall Soils Tour and beating the drum more. We will discuss the process during our upcoming meeting. It felt good to have more applicants.

- More quality scholarship applicants

A Directory is in the works for the annual meeting. Also, I would hope that our members are encouraged by the activities of the organization and excited about being more involved in what is happening.

- Membership directory
- Encouraging continued membership

Other discussion items which may be looked into in the future.

- Including job announcements on PSSAT website
- Allowing members to list professional certifications on the website

Thanks to Ricky Lambert who posted the Soil Photo ID contest from last year's meeting. You can go to "what's new" on the PSSAT member's page to find the link. <http://pssat.org/WhatsNew.htm>

I hope to see each one of you at the Annual Meeting on Wednesday, Feb 3 at G Rollie White Visitor Center, 7707 Raymond Stotzer Parkway (TX Hwy 60, close to the TAMU Beef Science Center), College Station, Texas.

2016 PSSAT Officer Elections

At our upcoming PSSAT Annual Meeting, the two offices up for nominations are the President-Elect and Vice President. The duties associated with each office is listed below.

President-Elect

Bylaws, Section 2. Duties of the President-Elect; the president-elect shall be a member of the Council and shall serve as the chairman of the Membership Committee

Vice President

Bylaws, Section 3. Duties of Vice President; In the absence or disability of the president, the Vice-President shall perform all duties of the president. Should a vacancy occur in either the office of the president or president-elect, the vice-president shall assume the office so vacated as prescribed in Article VI, Section 7 of the Constitution.

2016 Committee Assignments

Constitution and By-laws (3 members – 2 year term)

1. *Jon Weidenfeld (2015, 2016) jon.wiedenfled@tx.usda.gov
2. Jamey Douglass (2015, 2016) Jamey.douglass@tx.usda.gov
3. Ed Janak (2015, 2016) edjanak@airmail.net

Finance (3 members – 2 year term)

1. *Eddie Bearden (2015, 2016) eddie.bearden@htr.com
2. Tom Feuerbacher (2015, 2016) tom@hfatx.com
3. Travis Waiser (2015, 2016) travis.waiser@tx.usda.gov

Membership (5 members – 3 year terms with no more than 2 members expiring in same year)

1. Alan Stahnke (2014, 2015, 2016) alan.stahnke@tx.usda.gov
2. Sidney Paulson (2014, 2015, 2016) sidney.paulson@tx.usda.gov
3. Travis Waiser (2015, 2016, 2017) travis.waiser@tx.usda.gov
4. Chance Robinson (2015, 2016, 2017) chance.robinson@tx.usda.gov
5. Jacob Eickstead (2016, 2017, 2018) jeickstead@gmail.com

Public Relations and Education (3 members – 2 year term)

1. *Carlos Villarreal (2015, 2016) carlos.villarreal@tx.usda.gov
2. Jacob Eickstead (2015, 2016) jeickstead@gmail.com
3. Tom Cyprian (2016, 2017) tcyprian@hotmail.com

Nominations (3 members – 1 year term)

1. *Amanda Bragg (Imm. Past President-2014) Amanda.bragg@tx.usda.gov
2. Christine Morgan cmorgan@ag.tamu.edu
3. Lindsay Lang Lindsay.lang@rrc.state.tx.us

Scholarship (3 members – 2 year term)

1. *Shanna Dunn (2015, 2016) shanna.dunn@tx.usda.gov
2. John Sackett (2015, 2016) John.sackett@tx.usda.gov
3. Larry Deubler (2015, 2016) larry.deubler@tx.usda.gov

* Chairperson

Soil Scientists Participate in the Regional Collegiate Soil Judging Contest and Field Tour

Submitted by Carlos Villarreal, NRCS Soil Scientist, Region 9

During the week of October 19-24, 2015, Tarleton State University, Stephenville, TX, hosted the Regional Collegiate Soil Judging Contest. Drew Kinney, Region 9 Director and several Soil Scientists from Region 9 and the State of Texas participated in describing profiles and volunteering as pit monitors and scorecard graders for the Regional Collegiate Soil Judging Contest. Wayne Gabriel, Region 9 Soil Scientist (Temple, TX) presented a discussion on describing bedrock, densic material, and fragments.

The University of Arkansas, Oklahoma State University, Texas A&M University College Station, Texas A&M University Kingsville, and Texas Tech University were among the participants of the contest (Fig 1).. About 30 students were challenged with identifying several soil physical and chemical properties and interpretations of five profiles. Despite heavy downpours of rain, thanks to remnants of Hurricane Patricia, the University of Arkansas, Texas A&M University, and Texas Tech University (1st, 2nd, and 3rd place, respectively) qualified for the National Soil Judging Contest, which will be held in the spring.



Figure 1-Texas Tech University (Lubbock, TX), Texas A&M University (College Station, TX), and University of Arkansas (Fayetteville, AR) qualified to compete in the National Soil Judging Contest to be held in Manhattan, Kansas in April 2016. (Photo courtesy of Carlos J. Villarreal, NRCS Soil Scientist, Abilene, TX).

After the awards were presented, nearly 35 professional soil scientists from Texas and Arkansas attended the Professional Soil Scientists Association of Texas (PSSAT) Fall Meeting and Field Tour. Established in 1982, the Professional Soil Scientists Association of Texas (PSSAT) serves as a professional organization for nearly 200 Soil Scientists throughout Texas that includes both active and retired NRCS soil scientists as well as soil scientists from private companies, and other state and federal agencies. The objectives of the organization include advancing the knowledge of soil science and to promote wise utilization of soils as a natural resource.

The PSSAT Fall Meeting was held in the Texas A&M AgriLife Research and Experiment Center, Stephenville, TX. The guest speakers for the evening included Dr. Dominic Dotavio (President, Tarleton State University, Stephenville, TX), Dr. Donald Cawthon (Resident Director, Texas A&M AgriLife Research and Experiment Center, Stephenville, TX), and Dr. David Druckhammer (Interim Dean for College of Agriculture and Environmental Sciences, Tarleton State University, Stephenville, TX). The guests spoke about cooperation between the University and Research Institutions with the NRCS and the Soil Science Division, in particular. Also, they spoke about public service and encouraged the students in attendance to pursue a career path that is rewarding in ways other than simply monetarily. As participants were served fried catfish, several presentations were given in preparation of the Field Tour. An important topic of discussion during the meeting was the classification of bedrock and root-limiting layers. The understanding of cementation class, root-restriction, and horizon nomenclature better prepare a soil scientist in “telling a story” with the description and translating the findings into a valid interpretation rating, based on soil properties. Wayne Gabriel, NRCS Soil Scientist (Temple, TX), presented the most current decision tree for describing bedrock, densic material, and fragments. Mr. Gabriel reiterated the importance of using the decision tree for every root restriction to ensure consistency in profile descriptions and in NASIS population.



Figure 2--Chance Robinson, NRCS Soil Scientist, Marfa, TX, performs the slake test for a piece of bedrock material that is commonly found in the Walnut Clay Formation. (Photo courtesy of Carlos J. Villarreal, NRCS Soil Scientist, Abilene, TX).

The PSSAT Fall Field Tour, “Review of the Soils and Landscape of Erath County, TX,” began early Saturday morning in the Southwest Regional Dairy Center. As rain continued to fall, participants were given details about the sites that would be visited later in the day. The guides of the tour were John Sackett (NRCS Resource Soil Scientists, Weatherford, TX) and Dr. Donald G. McGahan (Assistant Professor of Environmental Soil Science, Tarleton State University, Stephenville, TX). The tour involved a study of three geologic formations, the Comanche Peak, Paluxy Sand, and Walnut Clay. Soil physical and chemical properties are used to differentiate between the several members. Differentiae, such as soil depth class, calcium carbonate equivalence, and presence or lack of an argillic horizon, assist in determining the members of each formation.

For the first site of the tour, Sidney Paulson (NRCS Soil Scientist, Stephenville, TX) described an outcrop of the Comanche Peak Formation near Chalk Mountain. The road cut exhibits nodular limestone, characteristic of the Comanche Peak Formation. Mr. Paulson fielded questions regarding water movement, root penetration, and restriction hardness with changes in crack spacing and cracking width. These are common concerns with the soil mapped within this geologic formation. The importance of performing the slake tests and understanding bedrock classification was heavily stressed at this stop.

The remaining sites were located within Tarleton State University’s Hunewell Ranch, a 1,200-acre ranch donated to the University. The typical profile of a soil derived from the Paluxy Sand Formation is observed as Pit 1. The profile contains a sandy, ochric epipedon over a sandy clay loam, argillic horizon. Pockets of “packsand” are found within the C horizon and these materials are considered noncemented (according to guidance found within the Field Book for Describing and Sampling Soils); however, roots do not pass through them. It was decided that this was an instance of the preference of the roots, rather than the roots inability to penetrate the material.

The second pit involved a profile, similar to Pit 1, that is moderately deep to alternating layers of noncemented mudstone and sandstone. Layers of calcium carbonate are observed in horizontal striations, which evolves the question of geologic or pedogenic origins. Members of PSSAT and NRCS Soil Scientists discussed methods of determining calcium carbonate origin in soils and how soil behavior or interpretations, are affected by the calcium carbonate origin.



Figure 3--Dr. David Rupert (Assistant Professor, Texas A&M University-Kingsville, Kingsville, TX), left, and students examine the nodular limestone features of Comanche Peak limestone. (Photo courtesy of John Sackett, NRCS Resource Soil Scientist, Weatherford, TX).

The third pit involved a soil that is deep to a laminar cap of calcium carbonate; however, the underlying calcium carbonate is not cemented. By definition, these would not qualify as a petrocalcic horizon. The question of how this phenomenon would be populated in NASIS without causing errors or providing incorrect interpretations was discussed at length. One possibility is to populate the component restriction table with a petrocalcic horizon, without adding the horizon as a diagnostic horizon.

The final pit (Fig. 4) involved a soil that is located in what looks to be a stream terrace; however, the soil characteristics are not typical of a stream deposited soil. Lack of stratified layers and rounded gravels led to several questions regarding parent material and landform position. In the future, a transect over the entire length of the landform will be completed in order to identify similar and dissimilar soil physical and chemical properties from the entire catena of soils. This could be one way to identify the source of the material within this pit.

Drastic differences in soil physical and chemical properties with a minimal change in elevation (~5 meters) were noted by the participants. It was determined that variabilities in geologic features and parent material were the driving force in creating these drastic differences. These findings opened up a discussion on the importance of using elevation as a tool in developing landscape and landform models. These types of models are developed as part of the map unit concept that is expressed for each map unit. Landscape and landform relationships, as well as elevation and climate data, are given in order to better explain where particular soils and soil features are found. The participating students on the tour received an explanation from NRCS Soil Scientists about how models are developed and how they are important tools for landowners and operators in resource conservation and planning.



Figure 4--Tour participants examine pit 4 and discuss parent material along with landscape and landform positions. (Photo courtesy of Carlos J. Villarreal, NRCS Soil Scientist, Abilene, TX).

At the conclusion of the Field Tour, having discussed and compared old and new ideas and techniques, participants felt energized and excited about the future of soil science. (Fig 5) They agreed that promoting the profession of soil science through education, research and field work, and updating lab and NASIS databases will continue to improve our knowledge of soils.



Figure 5-- Members of the Professional Soil Scientists Association of Texas (PSSAT) assisted with Regional Soil Judging contest (Photo courtesy of Carlos J. Villarreal, NRCS Soil Scientist, Abilene, TX).