**Update Mapping Sub-Team Meeting**

**9/25/2018 – 11:00am to 12:20pm**

**Participants**

1. Joe Brennan, SS SSR10, St. Paul, MN
2. Dave White, SS 8-LAS, Las Cruces, NM
3. Chance Robinson, SS 9-STE, Stephenville, TX
4. Jessica Phillipe, SS 12-STJ, Saint Johnsbury, VT
5. Stephen Roecker, SS/GIS SSR11, Indianapolis, IN
6. Betsy Schug, SS 10-FER, Fergus Falls, MN
7. Jordaan Thompson, SS 10-FAR, Fargo, ND
8. Alex Stum, SS/GIS SSR9, Temple, TX
9. Tyson Morley, SS 9-ALT, Altus, OK
10. Lynn Loomis, SS 8-MAF, Marfa, TX
11. Eric Wolfbrandt, GIS SSR8, Phoenix, AR
12. Martin Figueroa, SS 7-FOR, North Ft Myers, FL
13. George Otto, ESS 7-TUS, Tuskegee, AL
14. Suzann Kienast-Brown, SS/GIS SSR4, Bozeman, MT
15. Matthew Duval, ESS SSR3, Raleigh, NC
16. Chad Ferguson, SS/GIS NSSC, Lincoln, NE
17. Tom D’ Avello, SS/GIS NSSC-GRU, Morgantown, WV
18. Adolfo Diaz, GIS SSR10/Digitizing Unit, Madison, WI
19. Linda Harring, GIS SSR10/Digitizing Unit, Madison, WI
20. Jocelyn Wardrup University of Delaware
21. Cathy McGuirre, RD SSR8, Phoenix, AZ
22. Nathan Starman, SRSS SSR8, Phoenix, AZ

**Absent**

1. Rebecca Fox, SS 12-PAS, Paul Smiths, NY
2. Jamin Johanson, ESS 12-DFX, Dover-Foxcroft, ME
3. Jacob Isleib, SS 12-TOL, Tolland, CT
4. Sara Saunders, SS 6-MIL, Mill Hall, PA
5. Amber Wyndham, SS 5-PUE, Pueblo, CO
6. Nathan Hartgrove, SS 6-CLI, Clinton, TN
7. Dan Benyei, SS 6-MAT, Marietta, OH

**USDA Connect (Joe)**

* Sub-team meeting minutes will be posted to USDA Connect
* All are encouraged to utilize forums to start side discussions about all things related to DSM
* Post your questions, get answers

**Using DSM techniques in an update Soil Survey Project 8-LAS Las Cruces, NM**

**Dave White-presenter**

* Dust Mitigation purpose of project
* Test area for the use of DSM techniques to update spatial/tabular
* 55 covariates developed
* Spectral – Landsat 8 - 3 scenes chosen to represent different vegetative & parent material signatures in project area of desert southwest
  + Dry scene (pre-monsoon-June)
  + Wet scene (during monsoon-July)
  + Vegetative production (green-up following monsoon-September)
* Utilized cost constrained cLHS with land access being the most important factor
* Initial model of 27 components provided poor visual and internal model accuracy
* Increased accuracy in second model run to 0.63
* Final model increased accuracy from 0.63 to 0.75

**Discussion (Chad/Suzann/Alex/Joe/Stephen)**

* Project informed SSURGO spatial/tabular updates
* No plan to correlate RSS at present
* Phases or soil series
  + Properties important in this project area which were not necessarily series criteria
    - Ponding
    - Salinity
    - Sodicity
* Parsimony of components
  + Lots of classes (35) with minimal data
* “Polypedon” polygons
  + In this project represent potential polypedons rather than internal variability.
  + Further testing of variability needed
* Independent validation needed due to data boosting
* Could you utilize the current data observations as a validation set and utilize polypedon points as a model building dataset?
* Explanation of similarity index within hand-drawn “polypedon” polygons for this project
* “You have to tell the computer what you want to find.”
* Code for polypedon approach is available on Github

**Components, covariates, relationships: the three-leg foundation of raster soil science Marfa, TX**

**Lynn Loomis-presenter**

* Documenting soilscape models to prevent future scientists from having to rediscover the model
* Soil survey as a science instead of an art
* Components – Covariates – Relationships
* ArcSIE overview
* History of major shifts in Soil Survey Technology
* Raster Soil Survey is Not a paradigm shift
* 3 steps in “Raster Soil Survey”
  + Compile list of components
  + Assemble data
  + Discover and record relationships
* Presentation of Knowledge-Based DSM in Culberson Gypsum Plain of Far West Texas
* ***National Cooperative Soil Survey should create a data warehouse to house rulebase models for future soil scientists to improve upon***
* Presentation

**Discussion (Suzann/Joe/Chad)**

* All models (knowledge-based classification, predictive modeling, etc) should be archived.
* Methods of calculating covariates, relationships discovered, and other pertinent information from the project should be recorded in correlation notes.
* If the product was utilized to derive SSURGO polygons it should be suitable for publication as RSS on Geodata Gateway.

**Closing Remarks (Dave)**

* See you next month.