**Update Mapping Sub-Team Meeting**

**8/24/2018 – 11:00am to 12:25pm**

**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. Rebecca Fox, SS 12-PAS, Paul Smiths, NY
5. Betsy Schug, SS 10-FER, Fergus Falls, MN
6. Tyson Morley, SS 9-ALT, Altus, OK
7. Alex Stum SSR9, Temple, TX
8. Luis Garcia, ESS 8-LAS, Las Cruces, NM
9. Lynn Loomis, SS 8-MAF, Marfa, TX
10. Sara Saunders, SS 6-MIL, Mill Hall, PA
11. Suzann Kienast-Brown, SS/GIS SSR4, Bozeman, MT
12. Chad Ferguson, SS/GIS NSSC, Lincoln, NE
13. Adolfo Diaz, GIS Madison, WI
14. Amber Wyndham, SS 5-PUE, Pueblo, CO
15. Nathan Hartgrove, SS 6-CLI, Clinton, TN
16. Dan Benyei, SS 6-MAT, Marietta, OH
17. Jocelyn Wardrup University of Delaware

**Absent**

1. Jamin Johanson, ESS 12-DFX, Dover-Foxcroft, ME
2. Jessica Phillipe, SS 12-STJ, Saint Johnsbury, VT
3. Neil Martin, SS 11-FIN, Findlay, OH
4. Jordaan Thompson, SS 10-FAR, Fargo, ND
5. George Otto, ESS 7-TUS, Tuskegee, AL
6. Tiffany Smith, SS 6-WAY, Waynesville, NC
7. R Jay Ham, SS 3-GRE, Greensboro, NC
8. Stephon Thomas, SS 3-GRI, Griffin, GA
9. Wade Bott, SS State Office, Bismarck, ND
10. Jeffrey Hellerich, SS State Office, Salina, KS
11. Tom D’ Avello, SS/GIS NSSC-GRU, Morgantown, WV
12. Stephen Roecker, SS/GIS SSR11, Indianapolis, IN
13. Matthew Duval, ESS SSR3, Raleigh, NC
14. Martin Figueroa, SS 7-FOR, North Ft Myers, FL
15. Jacob Isleib, SS 12-TOL, Tolland, CT
16. Eric Wolfbrandt, GIS SSR8, Phoenix, AR

**Introduction (Chance)**

* In Reference to Soil Survey Technical Note No. 4: *“We do not map taxonomic classes. We use conceptual landscape models to map natural bodies of soils. We then use our taxonomy to classify and name the soils we have mapped.”*
* Is DSM really anything different? Aren’t we still modelling Landscape Units?
* Reference ‘Predictive modelling in soil survey’ by A.E. Hewitt
* Posed fundamental questions for team members to consider: Are we surveyors or scientists? Do we apply the scientific method?
* Develop Questions 🡪 Generate Hypothesis 🡪 Test Hypothesis 🡪 Confirm Hypothesis
* We pursue modelling as an explanation for formulating mapping
* The 1993 update of the SSM omitted reference to the Scientific Method

**Team Member Project Overviews**

1. Define area and project scope

2. Identify physical features of interest

**Project overview from 9-ALT; Altus, OK (Tyson Morley)**

**MLRA 82B - Wichita Mountains**

1. Define area and project scope

* Complex Bedrock Geology
* Significant Public Ownership (only about 1/3 private land)
* Need to establish series, map units, ecological sites
* Only two series were mapped in the entire project area, with only none unique to Gabbro PM. All deep soils
* 12-digit HUCs were utilized to stratify the area into manageable size

1. Features of Interest

* Several LIDAR-based terrain covariates have been assessed for inclusion in cLHS sampling plan
* Generated approximately 30 mapping points to document series and ESDs

**Discussion (Tyson/Chance/Suzann/Chad/Alex/Joe)**

* 10m vs. 5m resolution. No standard resolution recommended for these projects nationally. Should relate to the features of interest.
* 12-digit HUC tiling scheme
* Can use hydro-based tiling scheme for hydro derivatives, but don’t necessarily need to use those tiles for the sampling plan, can mosaic or aggregate tiles
* ArcSIE Hydro derivatives have some constraints in file size, SAGA can process greater file sizes for multipath wetness.
* SAGA 6+ available for NRCS Limited Use
* Consider including Geology in a cLHS or as stratified in sampling plan
* Resolution should be related to features of interest. No recommended ‘standard’ resolution for modelling. Evaluate project to project. 10m resolution would be the product output but doesn’t need to constrain the modelling effort.
* Issues with cultural features can be resolved. Some software, toolboxes, or processes available.

**Project overview from 12-PAS; Paul Smiths, NY (Rebecca Fox)**

**MLRA 142 – Lake Champlain Basin Initiative – Update Mapping Project**

1. Define area and project scope

* Order 2 Soil Surveys of varying vintage
* Need a Soil Survey Product to better inform management decisions as Vermont
* Failing TMDLs in Champlain Basin
* Drainage Class & Slope Discrepancies
* Reconnaissance work suggests MWD & PD overmapped

1. Identify physical features of interest

* Vergennes Catena (Lacustrine Clays)
* Soil, Drainage, Glacial Geology (Marine Deposits vs. Lacustrine Deposits)
* Chemical Differences in deposits but similar physical properties
* 250,000-acre project area, but a 5,000 acre pilot area will be immediate focus
* Hoping to build a model locally and apply across the project area

**Discussion (Rebecca/Suzann/Joe/Alex)**

* Knowledge Discover findings – Revisit with Jess soon
* Modelling isostatic rebound – Alex referenced success with this in Utah
* Mapped Point Location Data of Marine Deposits – Worth revisiting to potentially isolate marine vs. lacustrine soils.
* Available point data in the area – Unknown
* Just getting started formulating mapping concepts

**Project overview from 6-MIL; Mill Hall, PA (Sara Saunders)**

**Shenandoah National Park Update for Interpretations**

1. Define area and project scope

* MLRA 130A in Virginia. Just learning soils, getting acclimated with the area
* A need to create seamless information, with overmapping of interpretive NULLs
* Assure colluvial aprons and other relevant areas have valid interpretive results
* Planned cLHS for Regional Field Week, with ArcSIE to be used for modelling

1. Identify physical features of interest

* LIDAR-based terrain covariates
* Geology
* Landcover
* Terrain Covariates

**Discussion (Suzann/Lynn/Alex)**

* 10m would be adequate resolution
* SAGA Gaussian Filters could be a good utility for Terrain Covariates
* Vegetation & Other Spectral Indices should be explored
* LIDAR canopy Height or Total Canopy Return Density may have potential

In closing Chance related the National Map as an excellent data hub, with additional localized geologic references in relation to ‘features of interest’:

<https://ngmdb.usgs.gov/mapview/>