**Implementation of SHAPE scoring**

Soil Health assessment value - % soil organic carbon

Sample - %SOC and geographic location (lat lon)

**Current process:**

**Step 1.**

**Get the input data**

1. Transform input data into common SOC units (if a commercial lab reports OM we can make a mathematical assumption).
2. Integrate metadata categories with CR-LMOD lists (conservation practices?)
3. Gather scoring covariates (depending on how the values are retrieved this may
   1. Climate and land cover
      1. Go to restricted BOX account (some layers are from outside sources, we can’t serve the) - [(2) 100m\_covariates | Powered by Box](https://nrcs.app.box.com/folder/125444425517?s=p3dcg9lyw6ocmmlhtobm04ticax4thj5&utm_campaign=collab%20auto%20accept%20user&utm_medium=email&utm_source=trans)
      2. ID relevant coverages in SoilGrids\_USA48\_COvs100m.csv
         1. P01PRI5.tif (from PRISM)
         2. T01PRI5.tif (from PRISM)
      3. ID relevant Landcover\_lagend.csv – Go to restricted BOX account (some layers are from outside sources, we can’t serve the)
   2. Other Soil Info
      1. SDA query or GIS intersection
         1. Suborder
         2. Surface texture

**Process Data**

1. Perform spatial join – add covariate values to sample point (done with python by others, or in ArcGIS by me)
2. Reclassify covariates (excel or SQL)
   1. Mean Annual PPT – leave as continuous
   2. Mean Annual Temp – leave as continuous
   3. Surface Texture – apply reclassification into 5 groups
   4. Suborder – apply reclassification into groups

**Apply Function**

1. Apply statistical function: Currently an R script with a shiny app for singular use: cooperators are currently working to make this into a batch mode

Currently under peer review: [https://paparker.shinyapps.io/ISHI\_app/](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpaparker.shinyapps.io%2FISHI_app%2F&data=04%7C01%7C%7Cd9a83eb235b74295906d08d89c4b8043%7Ced5b36e701ee4ebc867ee03cfa0d4697%7C0%7C0%7C637431195368594437%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=gzdg6UTWQdoMZmPyhofQ3CkYnDwcQth0b7GiFV7yOt0%3D&reserved=0)

**Evaluation**

1. Use scores to evaluate the outcomes/effects of management systems, land cover and conservation practices

**Additional Thoughts:**

* This process will be similar for all soil health properties that need to be scored.
* The process needs to both be automated and allow for testing and flexibility
* The statistical function will be unique for each property – the development of the function could be assisted by streamlining the data processing step
  + Fetching and joining data is really cumbersome