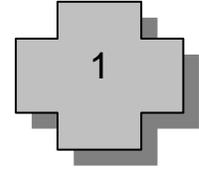


On the Job Training

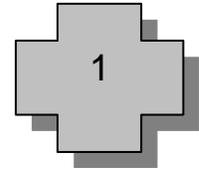
Project Soil Survey



Primarily for providing OJT to your new soil scientists in the MLRA Soil Survey Office.

Mapping Soils

1	1. Understand the overall process of mapping soils; clearly understanding the series of tasks in the office and in the field
2	2. Understand how we document mapping with photography, sketches, soil descriptions, field notes, and GPS coordinates
3	soil survey
4	4. How to use a soils key for your soil survey area
5	5. How to develop a soils key for your soil survey area
	6. Map unit Design
6	a. How to design a map unit – overview
Done - Marc	b. How to recognize and use components in soil survey
Done - Marc	c. How to recognize and distinguish map units in soil survey
Done - Marc	d. How to name map units
7	overview
8	8. Understand the relationship of the factors of soil formation in your soil survey area
9	9. Understand soil variability within the landscape continuum in your soil survey area
10	10. Understand the concept of landscape models and soil catenas
11	11. How to identify native /non-native plant vegetation and relate them to soils in your soil survey area
12	12. How to relate range sites/ecological sites to soil mapping in your soil survey area
13	13. How to effectively orient yourself on a photographic map while mapping/traveling in the field in your soil survey area
14	14. How to use a topographic map in your soil survey area
15	15. How to differentiate landscape features in your soil survey area using topographic data from topographic maps and/or DEM data in your soil survey area
16	16. Be able to interpret the photo images in your soil survey area
17	using hardcopy photograph and sources of data, with or without a stereoscope
18	18. Be able to complete pre-mapping in your soil survey area using digital data sources
19	19. How to plan traversing in your soil survey area based on scale and order of soil survey

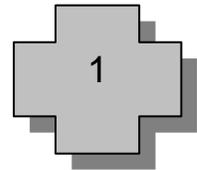


20	20. How to select observation points along your traverse in your soil survey area
21	21. How to estimate and describe rock fragments on the soil surface (surface stoniness)
22	22. How to let people know where you are when you go to the field in your soil survey area
23	23. Know what environmental issues exist in your soil survey area and how to deal with related emergencies
24	24. How to present soil survey program benefits to landowners to gain access permission in your soil survey area
25	25. How to effectively communicate and maintain professionalism with sometimes angry/uncooperative landowners and the general public when attempting to gain access to private property

Describing Soils

Investigations staff	1. How to use the “Field Book for Describing and Sampling Soils” with 232s (soil description forms) and 232 notations
Investigations staff	2. How to fill out a 232 soil description form
Investigations staff	3. Understand the difference between soil properties, soil qualities and soil interpretations
Investigations staff	in the field
	5. Soil Color
Investigations staff	a. How to read and use the Munsell soil color charts
Investigations staff	colors
Investigations staff	6. How to evaluate and describe soil redoximorphic features
Investigations staff	survey area
Investigations staff	8. How to describe soil ped and void surface features found in the soils of your soil survey area
	9. Soil Texture
Investigations staff	a. How to estimate sand, silt, and clay (using known samples)
Investigations staff	b. How to distinguish between sand fractions
Investigations staff	c. How kinds of clay affect estimating soil texture
Investigations staff	d. How to estimate organic soil texture
	10. Rock Fragments
Investigations staff	the soil
Investigations staff	soil
Investigations staff	the soil
Investigations staff	11. How to examine and identify soil structure
	12. Soil Consistence
Investigations staff	a. How to describe soil rupture resistance for dry soil
Investigations staff	b. How to describe soil rupture resistance for moist soil
Investigations staff	c. How to describe block, ped, clod cementation
Investigations staff	d. How to describe soil stickiness and plasticity

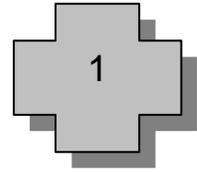
Investigations staff	13. How to describe roots in the soil
Investigations staff	14. How to describe pores in the soil
Investigations staff	15. How to describe cracks in the soil
Investigations staff	16. How to measure field soil pH
Investigations staff	17. How to identify and describe key soil properties, diagnostic features for your soil survey area
Investigations staff	18. How to create soil profile sketches



Soil Classification

done - Marc	Overview
Standards staff	2. How to utilize The Guy Smith Interviews: Rationale for Concepts in Soil Taxonomy
Standards staff	3. How to identify soil orders in your survey area
Standards staff	4. How to distinguish between soil orders in your soil survey area
Standards staff	5. How to identify diagnostic horizons and other characteristics in your soil survey area
Standards staff	6. How to identify soil series and diagnostic control sections in your soil survey area
Standards staff	7. How to identify soil particle-size families in your soil survey area
Standards staff	properties
Standards staff	9. How to relate a pedon description with lab data to classification – overview
Standards staff	10. Recognize and become familiar with the OSDs (Official Series Descriptions) relative to your soil survey area
	11. Databases
Standards staff	a. How to use the Official Soil Series Descriptions database
Standards staff	b. How to use the Soil Classification Database
Standards staff	12. Understand how a new soil series is developed – overview
Standards staff	13. How to name a new soil series
Standards staff	14. How to develop a range of characteristics for a new soil series
Standards staff	15. How to develop a range of characteristics for a soil component
Standards staff	Descriptions)

Soil Documentation

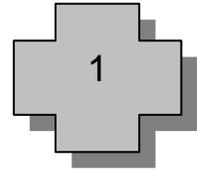


Standards staff	1. Understand the documentation standards for soil survey
26	survey
27	Descriptions), MUDs (Map Unit Descriptions), and OSDs (Official Series Descriptions)
28	4. How to plan for transect data
29	5. How to collect transect data
30	6. How to determine and quantify major and minor map unit components in your soil survey area
31	7. How to use transect data in map unit design – overview
32	8. How to collect field notes
33	9. How to collect plant species data and relate to map unit design – overview
34	10. How to create block diagrams to document landscape models (electronically)

Sampling and Characterization

investigations staff	– overview
investigations staff	2. How to perform basic sampling procedures in a soil sampling pit
investigations staff	3. How to sample for bulk density
investigations staff	4. How to sample oriented clods
investigations staff	5. How to sample for salinity tests
investigations staff	6. how to sample for engineering tests by Department of Transportation and other sources
investigations staff	7. How to prepare, handle, and ship samples to the NSSL
investigations staff	8. How to properly request lab analysis to meet your needs
investigations staff	9. How to access and use soil characterization data
investigations staff	10. How to analyze and summarize lab data reports for specific important soil properties in your survey area
investigations staff	11. How to apply lab data to physical and chemical soil properties and qualities – overview with examples
investigations staff	equations with lab data for specific soil properties in your soil survey area
investigations staff	Survey Office
investigations staff	14. How to do chemical analysis in the MLRA Soil Survey Office

Soil Information

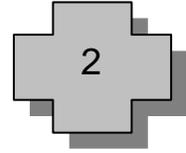


Standards	1. Understand what is law, what is a standard, and what is guidance in soil survey
Standards	2. Where to find and how to use NCSS standards and other sources of standards and guidance
	survey data
done-Marc	a. Web Soil Survey
Standards	b. Soil Data Mart
Standards	c. Soil Data Warehouse
Standards	d. eFOTG
Standards	e. Gateway
Done - Marc	website

Equipment Use and Operation

35	1. How to operate, navigate, and determine location using a GPS
36	survey area
37	3. How to use a compass
38	purposes)
39	5. How to use sharpshooters and spades correctly
40	correctly
41	7. How to locate and safely avoid pipelines and other utilities
42	8. How to safely drive a truck in 2 or 4 wheel through mud and difficult terrain in your soil survey area
43	9. How to change a tire in the field
J. Kelley	10. How to use a digital camera – basics
44	11. How to use a tablet for recording field data – basics
45	auger/probe
46	equipment
47	14. How to safely and effectively use a backhoe
48	15. How to safely and effectively use a power winch

On the Job Training



Technical Soil Services

Primarily for providing OJT to your new non soil scientists in the NRCS and SWCD service centers.

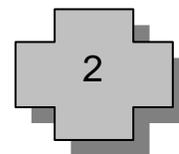
**Module Pre
or Post CBC**

Soil Survey

1	1. Understand the 5 factors of soil formation and how they relate to your soil survey area	CBC
2	2. How to identify landscapes, landforms, and surface Morphometry - overview	CBC
3	3. Understand the broad procedures for initial and update soil survey projects - overview	CBC
4	4. Be able to key down from landscapes to landforms to soil map units to soil components in your area	CBC
5	5. Understand the catena concept and its relationship to the soil as a continuum across the landscape in your area	CBC
6	6. Understand what is a map unit, a delineation and the components within your soil survey area	CBC
7	7. Understand the specific mapping procedures and tools used in the field in your area	
8	8. Know what the NCSS standards used in soil survey are and the kind of information that is in each - overview	CBC
9	in your area	CBC

Soil Science

10	1. Understand what are hydric soils	CBC
11	survey area – physical & chemical properties (structure, salinity, etc.), (ecological sites also as needed locally)-overview [Crop, Pasture, Range, Forest]	CBC
12	3. Recognize the importance of organic matter and soil carbon to soil quality and health - overview	CBC
13	your region	
14	5. Understand the processes of erosion - overview	CBC
done-Marc	6. How to use Web Soil Survey-basic	CBC
15	7. How to use Web Soil Survey-interpretive information	
16	suitabilities, limiting factors, etc..(Include explanation of fuzzy logic as related to soil properties)	CBC
17	health in your area-overview (tillage, ripping, urbanization, other)	
18	10. How to use the Soil Data Mart (include use of Access database) – operational use only	CBC

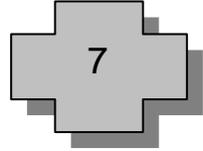


19	11. How to determine the erodibility of soils in your area from existing spatial and attribute data	
20	12. How to use Soil Data Viewer [basic]	
21	13. Understand the information found within the FOTG/eFOTG sections I and II	
22	overview (compaction from tillage or traffic, existing duripans, fragipans, bedrock, etc.)-(soil quality info sheets as job aids)	
23	sources-Gateway, WSS, SDM, archived reports, NSSL, etc) (what is official soil survey info) (understand where it came from, limitations of soil survey data, metadata with products)	CBC
24	of soils	
25	need in your state (when, why, procedures, handling contaminated soils,)	
26	18. How to recognize potential suitable locations for ag waste, dams, etc, onsite	
27	in your area-overview (LCC, Prime farmland, veg soil groups, etc.)	
Marc	20. How water moves through soil	
28	21. How to identify soil risks and hazards-overview and addressing those specific to your area	CBC
Marc	22. How chemicals move through soil	
29	23. How to properly use the HEL	
30	24. How to recognize potential suitable locations for ag waste, dams, etc, using soil info	
31	25. How to determine NHEL, HEL	

Describing Soils

32	1. How to determine soil texture for USDA system (existing chart from boot camp as job aid)	CBC
33	depths	CBC
34	3. How to recognize soil structure	CBC
35	4. Understand how soil structure affects other soil qualities	CBC
36	5. Understand the significance of soil color in your survey area (selected features in your area)	
37	6. How to use the Munsell system to describe soil colors	CBC
38	soils	CBC
39	8. How to measure soil pH and its importance	
40	9. How to determine soil texture using the Unified Classification System - overview	
41	10. How to measure soil salinity and its importance	

On the Job Training



Technical Soil Services

Also includes template lesson plans for use in providing training and education in soils and soil survey to your external customers.

Lesson Plans for Educational Purposes

1. Elementary students
2. Middle school students
3. High school students
4. Elementary teachers
5. Middle school teachers
6. High school teachers
7. Local Units of government: soils and soil survey
8. Other federal agencies, state agencies
9. General public, service groups
10. Universities and Institutes
11. Agricultural groups
12. Professional societies and other professional groups