Ad-hoc Committee on Soil Change

- Soil Survey updates. The Soil Change Guide: Procedures for Soil Survey and Resource Inventory — A. Tugel
- Soil Change Strategic Plan — K. Hipple
- Cooperator and Agency Needs for Dynamic Soil Property Data — P. Biggam
- Group Discussion — All

Discussion and Work Session

1. Identify environmental, productivity and resource management issues that involve management-induced changes in soil properties and function.

2. Provide input to the NCSS Soil Change Strategic Plan.

3. ??? Recommend a Soil Change Standing Committee and charges for regional and national conferences????

Soil Survey Procedures

Soil Change Guide:

Procedures for Soil Survey and Resource Inventory

VER. 1.1
2008

NRCS

ARS

NATIONAL PARK SERVICE

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Contents

1. Background on comparison studies and conceptual models
2. 6 steps to conduct a project
3. Soil and vegetation data is collected together
4. Cropland sampling design to be added

Developed by NRCS, ARS, and NPS with review by BLM and FS

Six steps of a comparison study

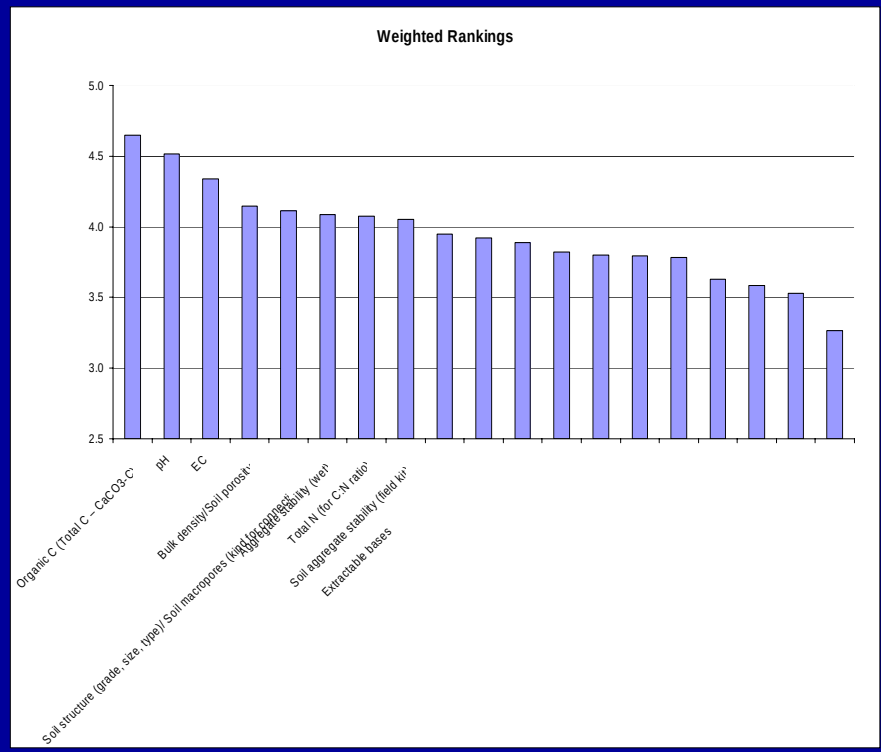
1. Project planning---objectives
2. Sampling design---what to compare
3. Sampling requirements---distribution and how many
4. Field work
5. Data preparation
6. Data analysis, interpretation, and reports

What properties do we measure?

Answer: Minimum data set

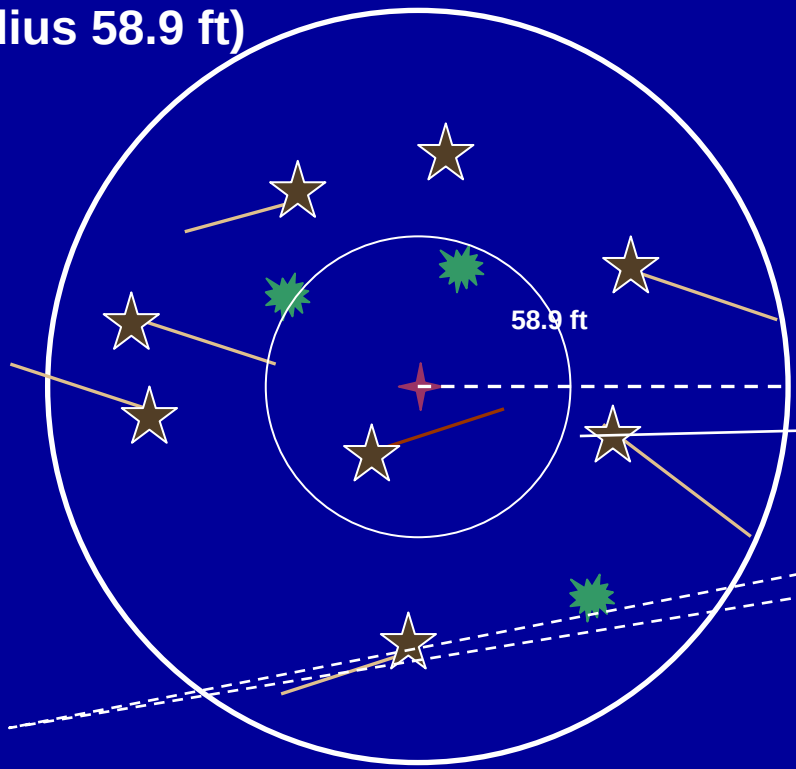
(March 15, 2008)

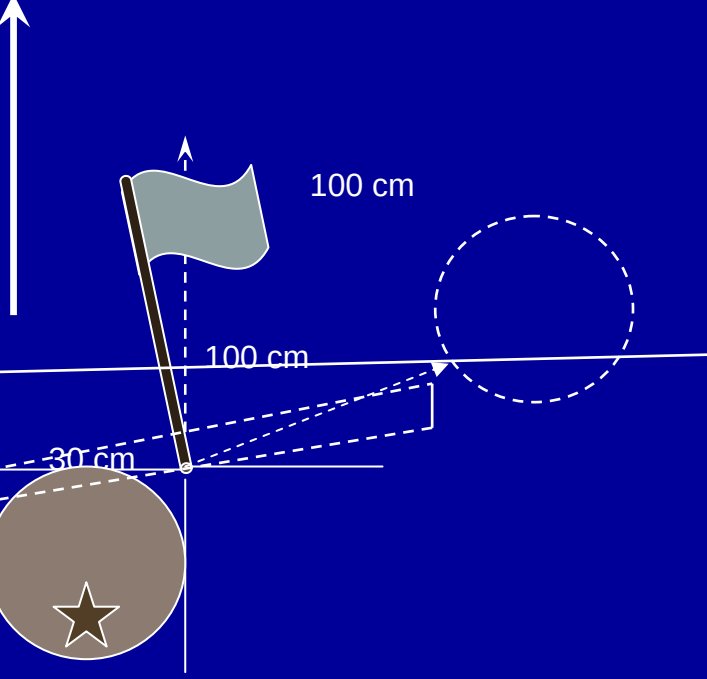
- Organic C
- pH
- EC
- Bulk density/Soil porosity
- Structure and macro-pores
- Aggregate stability (wet)
- Total N (for C:N ratio)
- Soil aggregate stability (field kit)



Forestland Ecosystem Plot

¼ acre plot
(radius 58.9 ft)





Plot center

Soil sample location

Vegetation understory/groundcover sample location

Woody debris transect

Interior circle = 1/20 acre understory fixed plot; Radius = 26.3 ft

Document the central tendency and range of variation

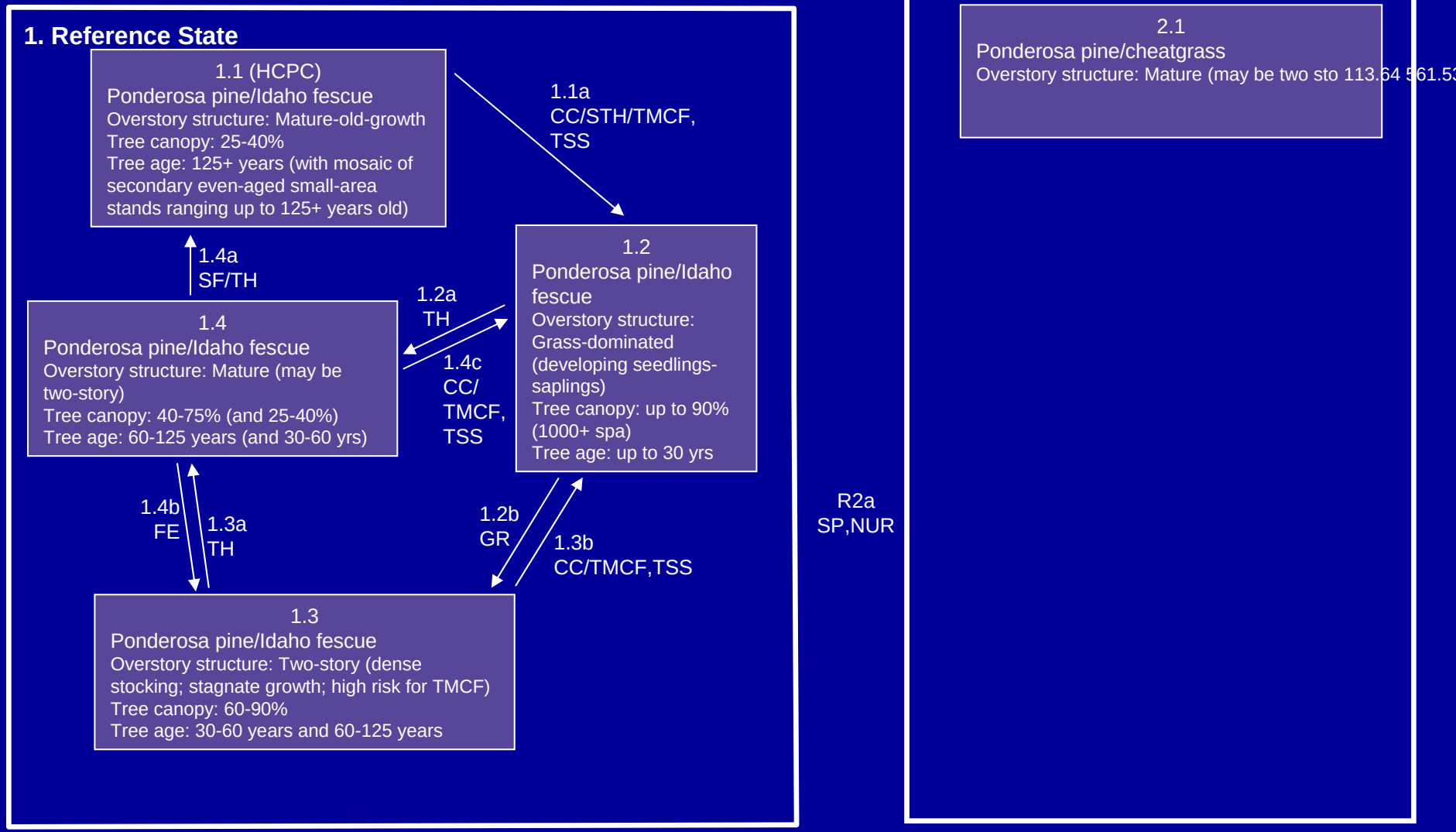
Bulk density

				Central tendency of plot means		Central range	Variation
		Depth/ horizon	full state phase range	Mean	Median	Interquartile range of plot means	CV
Begay fsl, 0-6%	PGS	0 - 2 cm	1.27 - 1.91	1.51	1.53	1.47 - 154	2.7
		A not 0-2	1.27 - 1.68	1.51	1.53	1.44 - 1.56	4.5
		B	1.46 - 1.62	1.55	1.55	1.52 - 1.58	2.0
	AG	0 - 2 cm	1.01 - 1.68	1.42	1.46	1.32 - 1.47	6.9
		A not 0-2	1.29 - 1.54	1.42	1.41	1.38 - 1.48	3.9
		B	1.42 - 1.59	1.51	1.51	1.48 - 1.54	2.0

How will we select benchmark soils for a comparison study project?

1. Experiencing critical resource management problems or opportunities.
2. Management history and other data available (soil and vegetation).
3. Existing long-term study project underway.
4. Mechanisms of change represent those of other similar soils.
5. Extensive.
6. Benchmark Ecological Site.

Forest State and Transition model



Pedogenesis

Ecological processes

- Energy capture and flow
- Hydrologic cycle
- Nutrient cycling

Capacity to function