NM Ecological Site Description Strategy

Presented by: John E. Tunberg
State Rangeland Conservationist

NM Ecological Site Description Strategy

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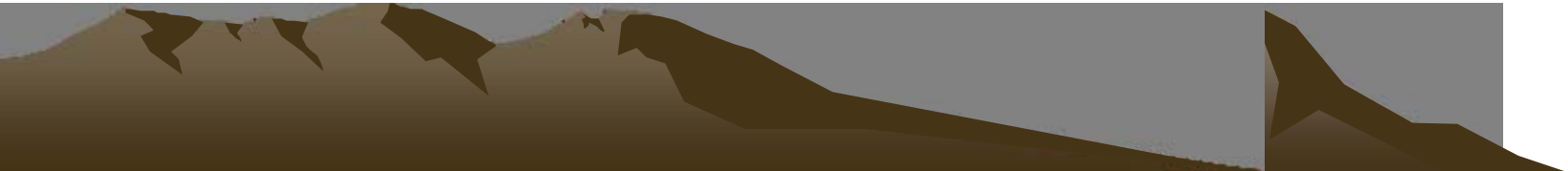

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- http://usda-ars.nmsu.edu/esd
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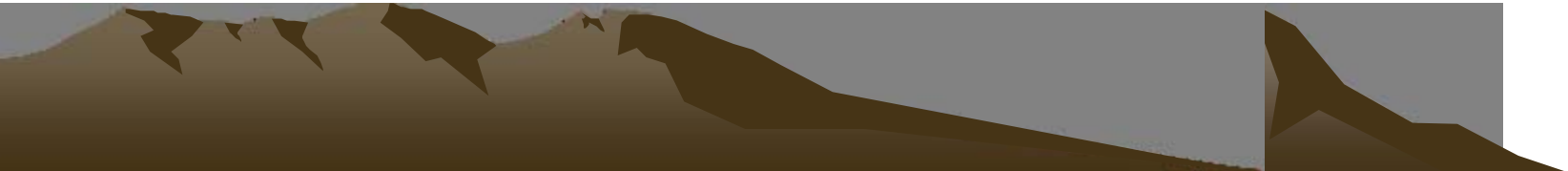
- http://esis.sc.egov.usda.gov/



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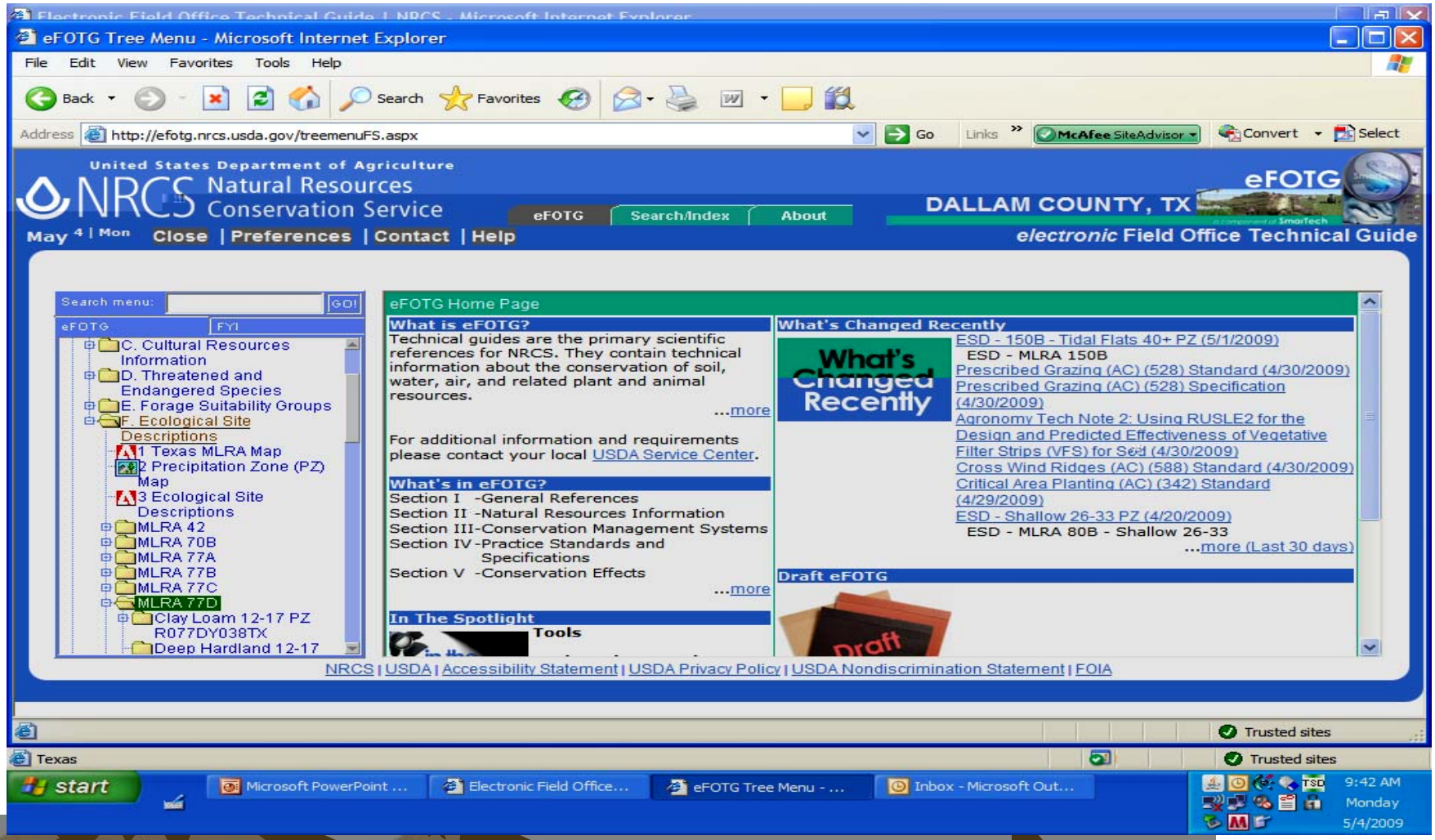
- http://www.nrcs.usda.gov/technical/efotg/

NM Ecological Site Description Strategy
Standard display of ESD options



NM Ecological Site Description Strategy
NM opted for more user friendliness

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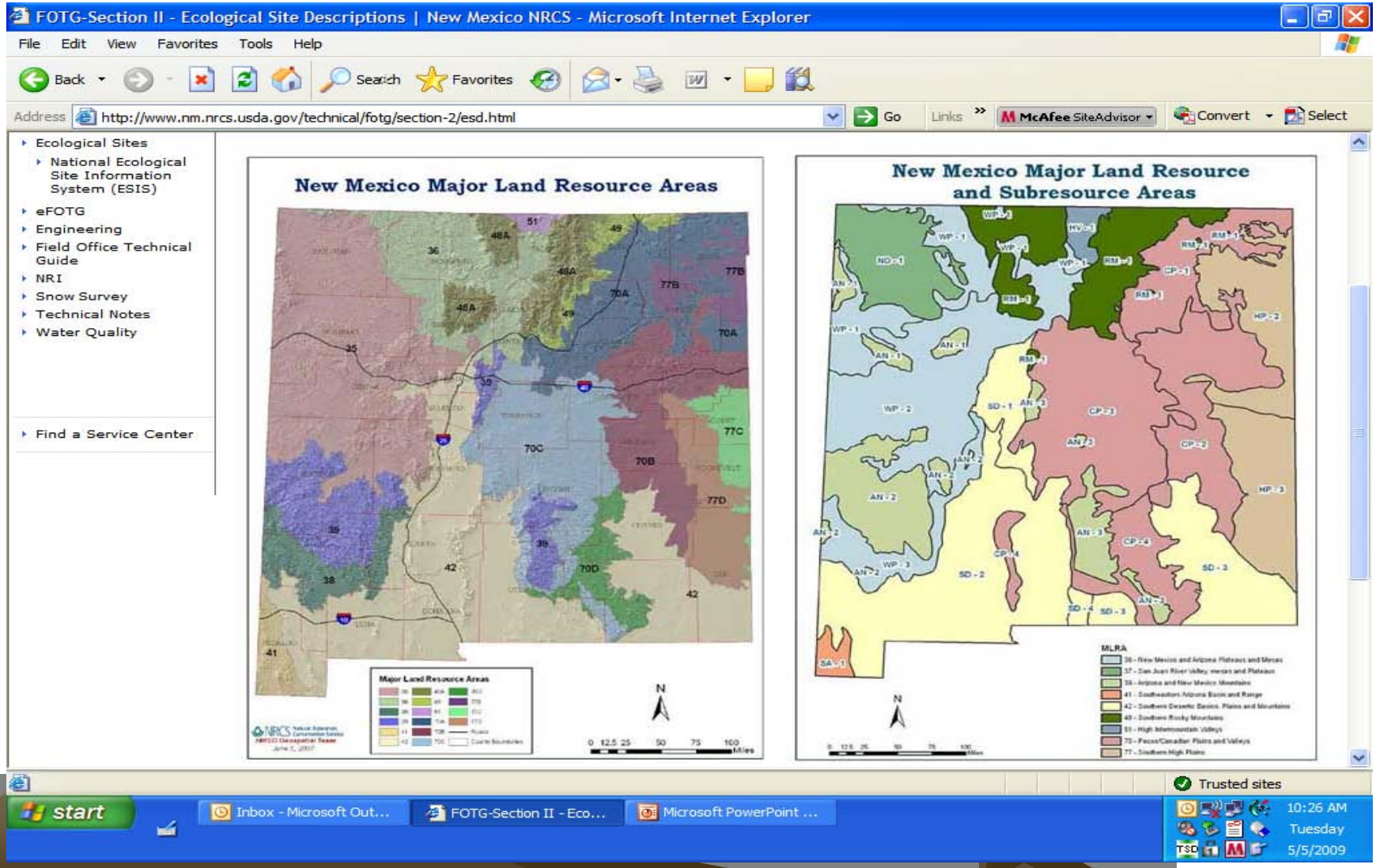
NM Ecological Site Description Strategy
NM opted for user friendly accessibility



NM Ecological Site Description Strategy
For those needing tabular references

http://www.nm.nrcs.usda.gov/technical/fotg/section-2/esd/NM_LRU_Legend_07NOV2008.pdf - Microsoft Internet Explorer

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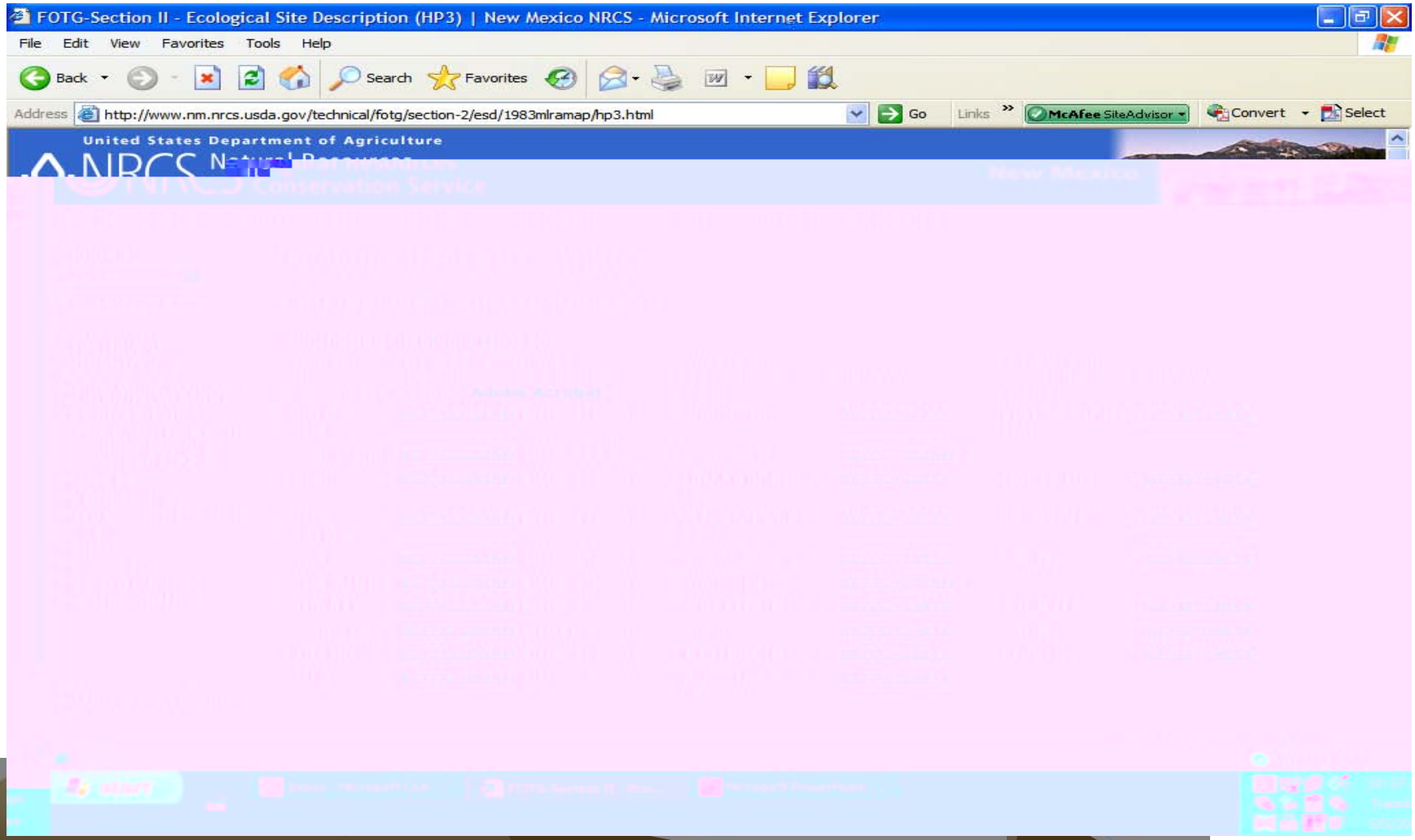
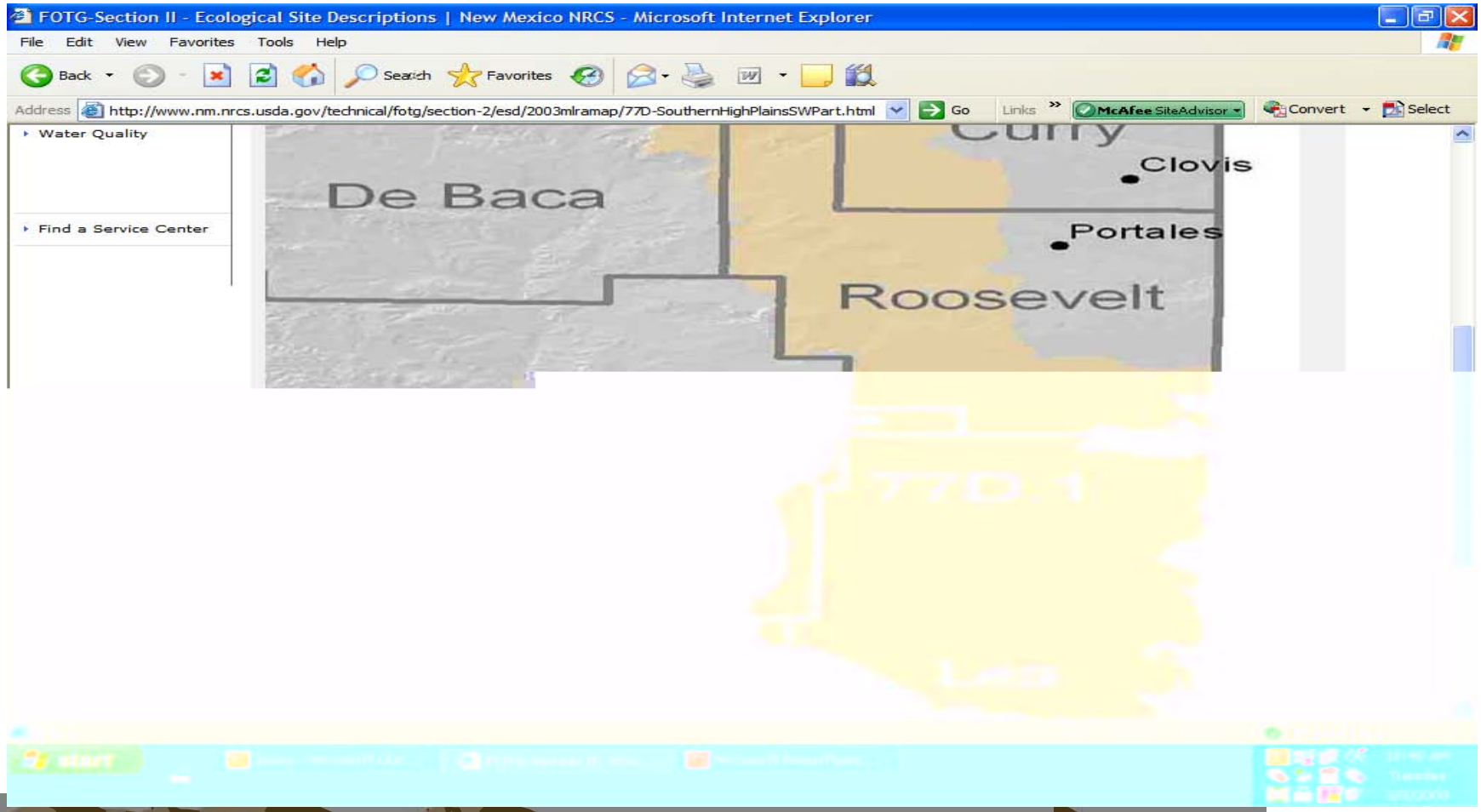
Address http://www.nm.nrcs.usda.gov/technical/fotg/section-2/esd/NM_LRU_Legend_07NOV2008.pdf

42 - Southern Desertic Basins, Plains, and Mountains					48A - Southern Rocky Mountains	49 - Southern Rocky Mountain Foothills	51 - High Inter Valley
42.2	42.3	42.4	42.5	42.6	48A.1	49.1	51.1
Chihuahuan Desert Shrubs	Chihuahuan Desert Grassland	Dry Mixed Prairie	Chihuahuan Desert Hills and Bajadas	Chihuahuan Desert Mountains	Southern Rocky Mountains - High Mountains and Valleys	Southern Rocky Mountain Foothills	High Intermount
3,800 - 5,000	2,800 - 5,000	4,700 - 6,000	4,500-6,000	5,500-7,500	6,500 - 14,400	6,100 - 8,600	7,400 - 1(
8 - 10	8 - 14	10 - 14	13-15	14-20	14 - 40	16 - 26	10 - 1
61 (2.45)	57 (3.15)	66 (2.65)	62 (2.38)	61 (2.15)	43 (5.53)	52 (2.36)	49 (2.4
thermic	thermic	thermic	thermic	mesic	frigic to cryic	mesic to frigid	mesic to f
typic aridic	typic aridic to ustic aridic	ustic aridic	aridic ustic	aridic ustic	ustic to udic	typic ustic	ustic aridic to a
no range seeding	range seeding	range seeding			reforestation	reforestation	
dropseed spp.	tobosa	black grama	black grama	blue grama	mountain brome	western wheatgrass	alkali sacaton
tobosa	black grama	blue grama	blue grama	sideoats grama	Thurber's fescue	sideoats grama	western wheatgr
black grama	alkali sacaton	alkali sacaton	sideoats grama	black grama	mountain muhly	little bluestem	Indian ricegrass
bush muhly	burrograss	tobosa	hairy grama	hairy grama	Arizona fescue		blue grama
burrograss			wolftail	prairie junegrass	tufted hairgrass		galleta
				curlyleaf muhly	sedge spp.		squirreltail
				New Mexico muhly			spike muhly
				stipa spp.			saltgrass
creosote bush	creosote bush	creosote bush	yucca spp.	gambel oak	big sagebrush	Gambel oak	greasewood[2]
tarbush	four-wing saltbush	soaptree yucca	sotol	shrub liveoak	moun		

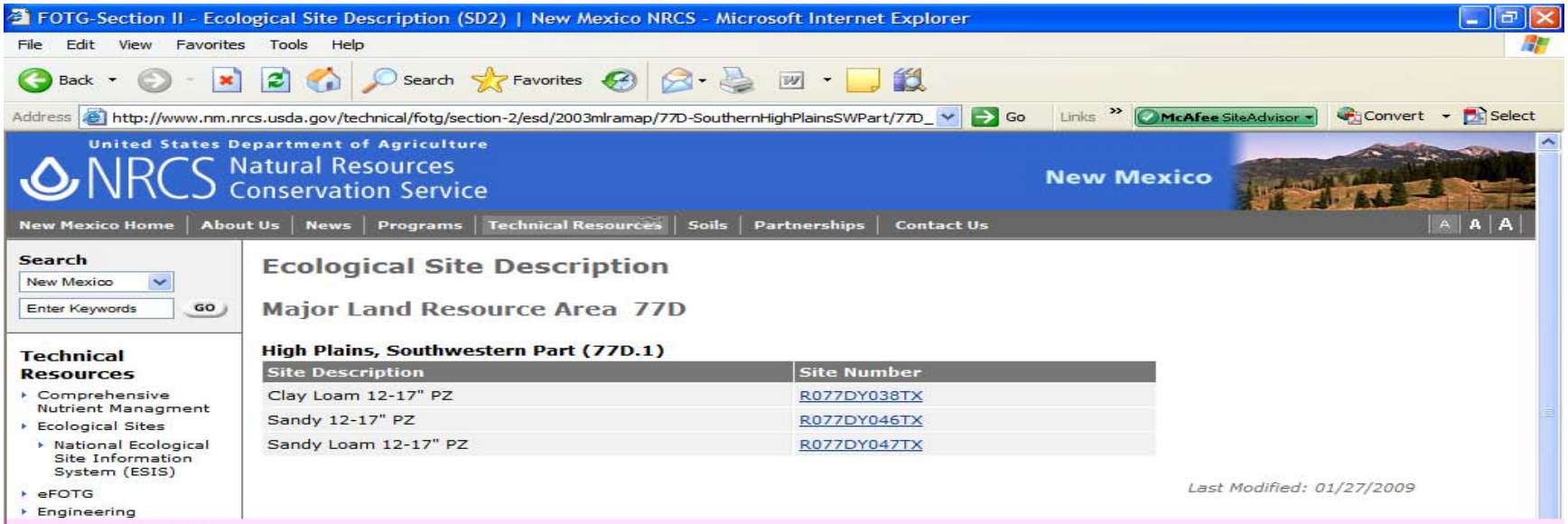
NM Ecological Site Description Strategy 1983 MLRA map selection displays old ESD list and the potential correlated matches.



NM Ecological Site Description Strategy
2003 MLRA map zooms to LRU



NM Ecological Site Description Strategy 2003 MLRA data is updated as new ESD come on-line



NM Ecological Site Description Strategy 2003 MLRA based ESD have Keys and Flow Charts

FOTG-Section II - Ecological Site Description (SD2) | New Mexico NRCS - Microsoft Internet Explorer

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Address http://www.nm.nrcs.usda.gov/technical/fotg/section-2/esd/2003mlramap/48A-SouthernRockyMtns/48A_1.html Go Links McAfee SiteAdvisor Convert Select

Mountain Stony Loam (Black Sagebrush)	R048AY449UT
Mountain Stony Loam (Browse)	R048AY451UT
Mountain very steep loam (oak)	R048AY465UT
Mountain very steep loam (Salina wildrye)	R048AY466UT
Mountain Very Steep Loam (Curlleaf mountainmohagony)	R048AY471UT
Mountain Very Steep Stony Loam (Browse)	R048AY473UT
High mountain loam (thurber fescue)	R048AY515UT
Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica	F048AY009NM
Pinus ponderosa/Festuca arizonica-Danthonia parryi	F048AY010NM
Pinus ponderosa-Juniperus scopulorum/Quercus gambelii	F048AY011NM
Populus fremontii/Salix/Carex	F048AY012NM
Pinus engelmannii-Abies lasiocarpa/Vaccinium	F048AY013NM
Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri	F048AY014NM
Pinus edulis-Juniperus monosperma/Quercus gambelii	F048AY015NM
Pinus edulis-Juniperus scopulorum/Quercus gambelii	F048AY016NM
Juniperus monosperma-Pinus edulis/Bouteloua gracillis	F048AY017NM

The following documents require Adobe Acrobat

MLRA 48 ESD Key Flow Chart (PDF; 31 KB)

Key 48A (PDF; 15 KB)

Last Modified: 10/28/2008

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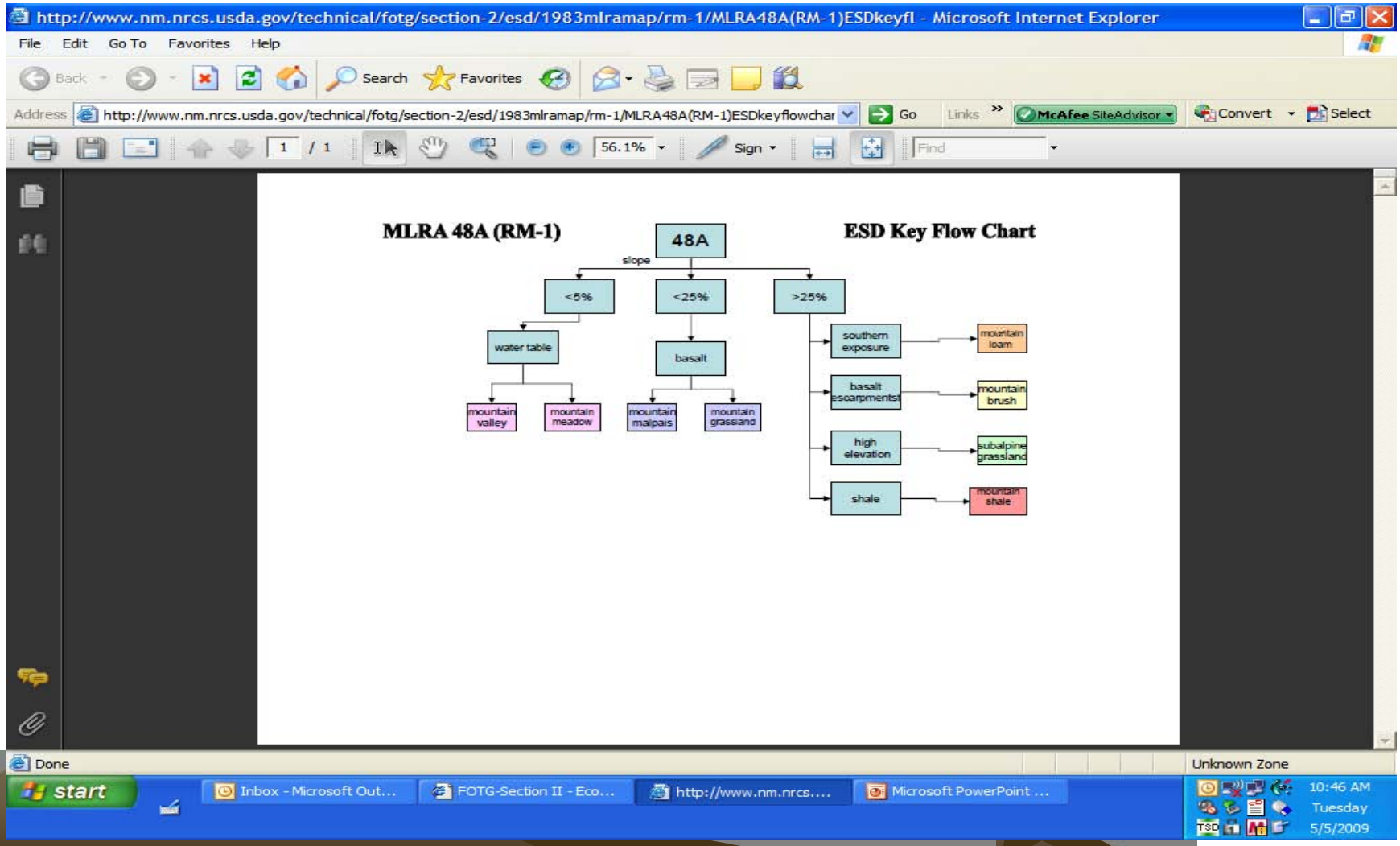
NM Ecological Site Description Strategy 2003 MLRA based ESD have Keys and Flow Charts



NM Ecological Site Description Strategy 2003 MLRA based ESD have Keys and Flow Charts

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1 / 2 102%

Key 48A

1a. Slopes average <5% Go to 2
1b. Slopes average<25% Go to 4
1c. Slopes average >25% Go to 6

2A active water table Go to 3
2B. Other soils Slopes are 0-3%, but may range to 5%. Elevation ranges from 7,000 to 9,000 feet. Soils are well drained and deep to very deep with textures of loam to sandy loam. Vegetation includes mountain muhly, Arizona fescue, mountain brome, pine dropseed, western wheatgrass, blue grama, little bluestem, tufted hairgrass, needleandthread, big bluestem, Indiangrass, bluegrass, prairie junegrass, sedge, vetch, peavine, clover, iris, yarrow, coneflower, viola, oak, snowberry, serviceberry, fringed sagewort, and cudweed sagewort.
Mountain Valley

3. Slopes do not exceed 5%, elevation ranges form 7,000 to 9,500 feet. The soils are deep to moderately deep silty clay loams, clays, mucky silty clay, channery clay loams, or loams with an active water table. Vegetation includes tufted hairgrass, Nebraska sedge, broomsedge, sedge, mountan brome, western wheatgrass, bulrush, poverty rush, Baltic rush, red fescue, blue joint

Done Unknown Zone

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NM Ecological Site Description Strategy

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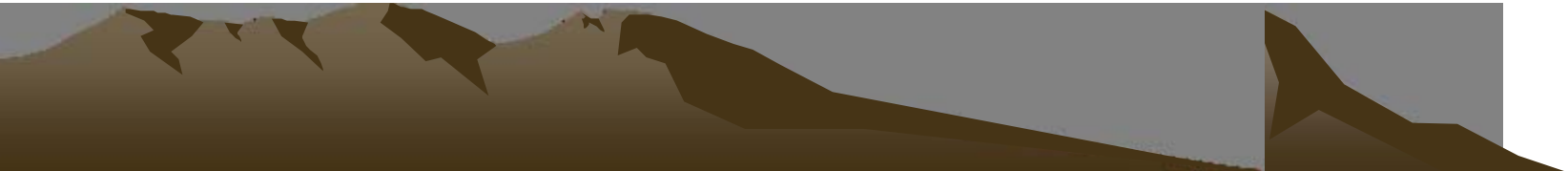


Outline

- Interagency manual policy
- Agency business requirements
- Data elements by approach
- Normalizing (cross-walking) information
- Areas of future discussions

Rangeland Ecological Site Interagency Manual

(190-V-RESIM, First Edition, 2008)

- Purpose of the MOU: Develop a standardized method for defining, delineating, and describing ecological sites
- Common Objective:
  - utilize science-based technical processes to sustain and enhance natural resources and the environment.

Minimum requirements to be included in the contents of the draft rangeland ecological site description (190-V-RESIM, First Edition, 2008)

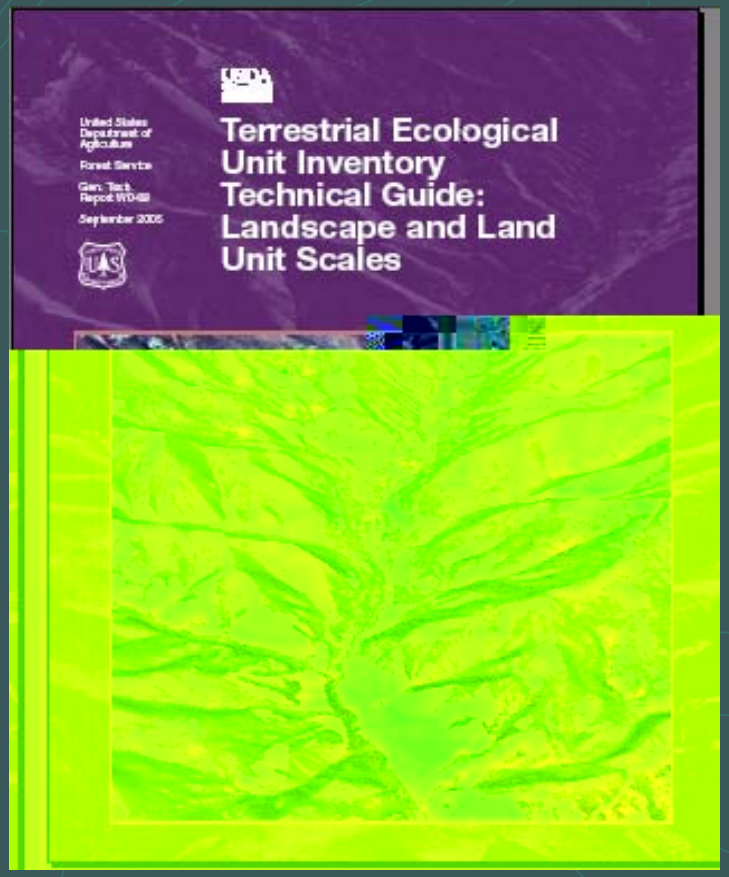
- Ecological site name, number and map of geographic extent.
- Physiographic features: landform, geology, aspect, slope, elevation, etc.
- Climatic features: frost/freeze free period, MAP, NOAA stations, monthly moisture and temp.
- Influencing water features: e.g., riparian areas or wetlands (Cowardin & Rosgen).
- Representative soil features: differentiating on ecological site from another (e.g., growth, hydrology, adaptation).
- Ecological dynamics of the Site: states, transitions, thresholds, community pathways, etc., as a result of disturbance.

Minimum requirements to be included in the contents of the draft rangeland ecological site description, cont'd (190-V-RESIM, First Edition, 2008)

- Vegetation: standardized plant names from Integrated Taxonomic Information System-PLANTS database; for reference state, list of plant species, normal annual production; canopy, foliar, basal cover as related to lifeform; states, community phases; tree production, sites index.
- Supporting information: relationship to other ecological sites and other classification systems (e.g., NVCS).

Agency Protocol for Ecological Mapping

- Soils
- Geomorphology
- Geology
- Potential Natural Vegetation
- Climate



Integrated approach to soil, vegetation and climate data collection, mapping and interpretation

- Simultaneous collection of ecosystem at data.

Existing vs. potential vegetation…

Characteristic	EXISTING	POTENTIAL
Classification	Dominance Type / Cover Type	Plant Association
Vegetation Indicators	Abundance	Presence/Absence – Assemblages
Inference	Disturbance History / Succession	Physical, Chemical Environment
Temporal	Dynamic (relatively)	Stable (relatively)
Model Variables	Spectral (mostly)	Biophysical (mostly)

Comparison of total descriptive and interpretive data elements by method.

USDA-FS, TEUI	USDA-FS, TES	USDA-NRCS, ESD
192	222	169

Number of data elements, by category, for ecological sites description by method.

USDA-FS, TEUI	#	USDA-FS, TES	#	USDA-NRCS, ESD	#
Soils	50	Soils	15	Soils	16
Vegetation	97	Vegetation	87	Vegetation	97
Geomorph/Geol	17	Geomorph/Geol	18	Geomorph/Geol	3
Climate	3	Climate	19	Climate	6
Total	167	Total	139	Total	122

Crosswalk of MLRA 39-New Mexico/Gila NF

Recommendations for correlation of ESD's and TEUI data

- Decide on a consistent scale to correlate.
- Agree upon site selection criteria for ecological sites (stability, diversity, function).
- Uniformly embrace a vegetation taxonomic system (e.g., NVCS).
- Strive for a data-driven state and transition model.
- Develop additional crosswalks between systems.