Missouri Conservation Planning Course

Ecological Site Descriptions

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NRCS State Office

Module 2B - 2013

PRESENTATION TOPICS

- What is an Ecological Site (ES)
- ES examples
- What is an Ecological Site Description (ESD)
- Missouri ES development project
- ESDs and land management

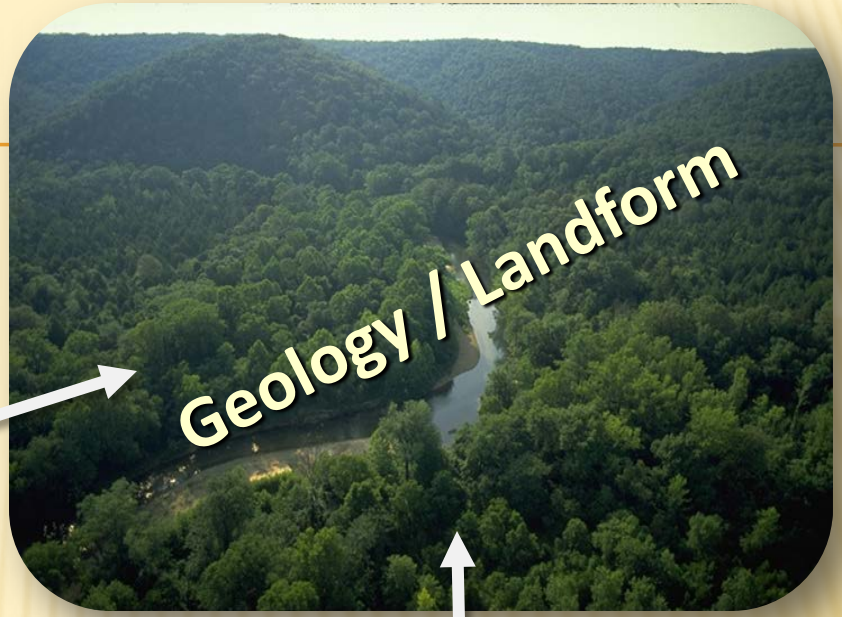
animal, plant, or mineral

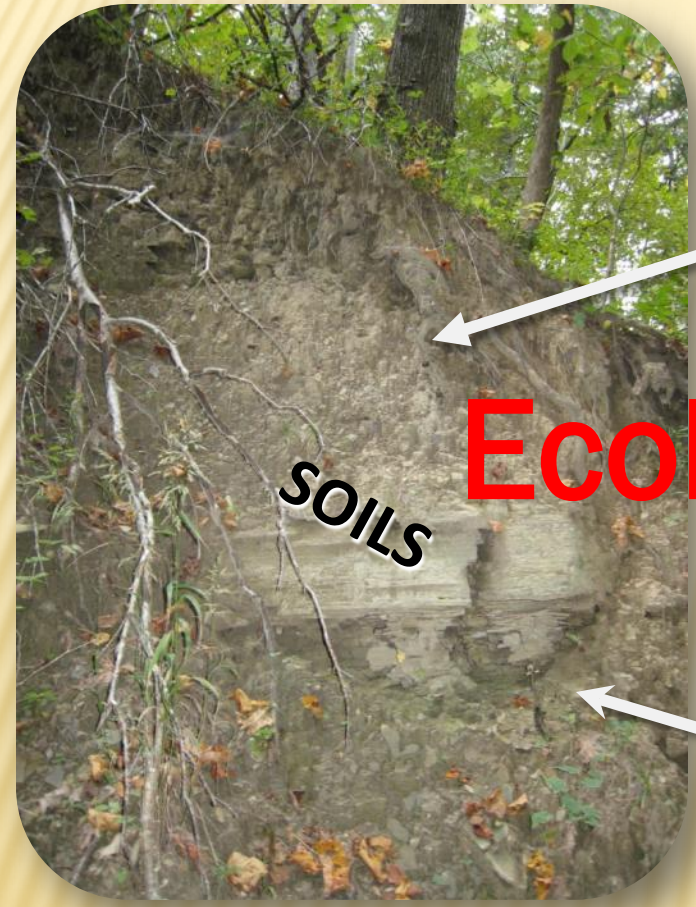
WHAT IS AN ECOLOGICAL SITE?

Looking across any landscape it's not difficult to recognize that ...

many acres are different from other acres - in the kinds and amount of vegetation, landform, and geology

BASIS OF AN ES





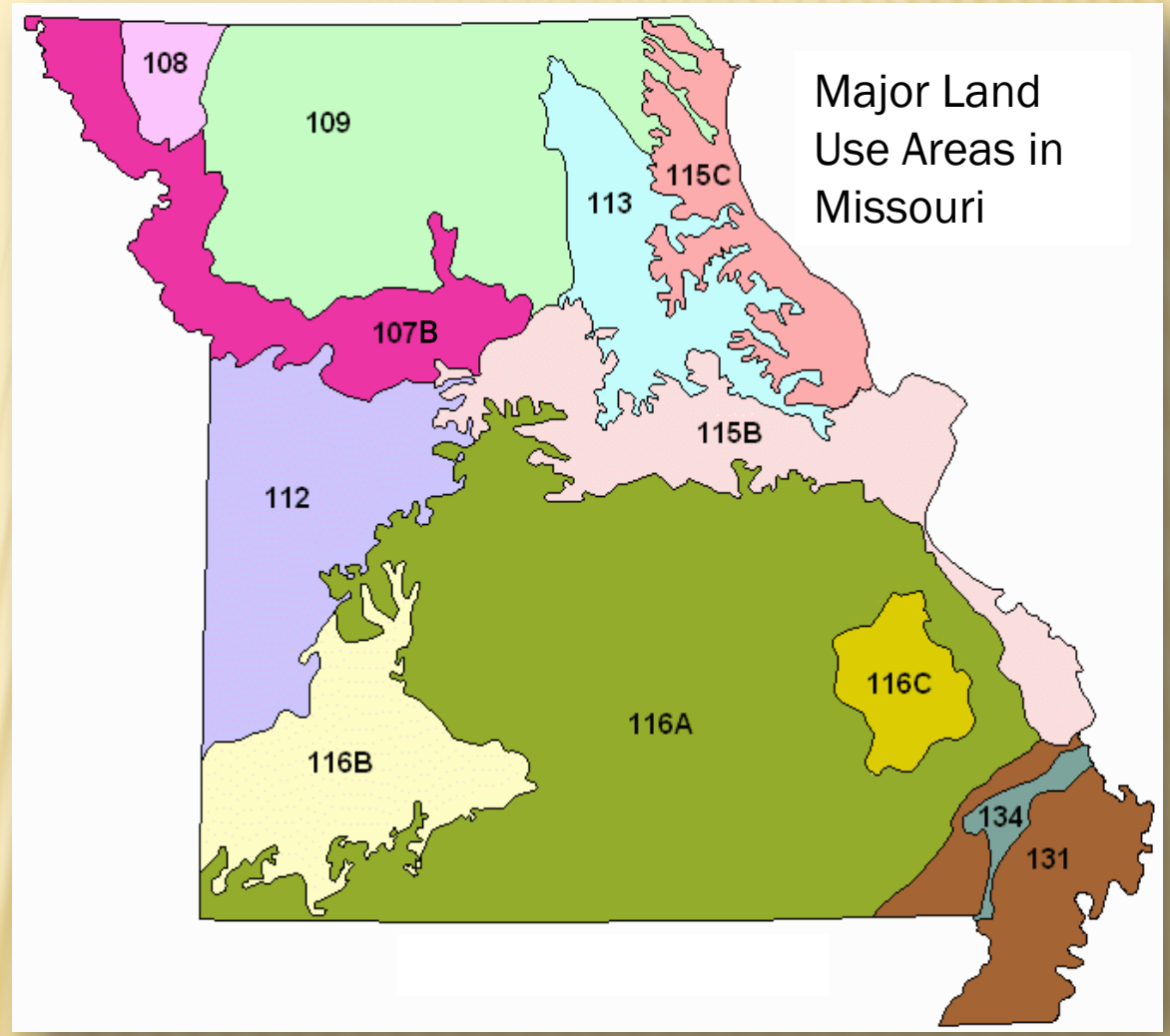
Ecological Site

how it’s being done in Missouri

ECOLOGICAL SITE PROCEDURES

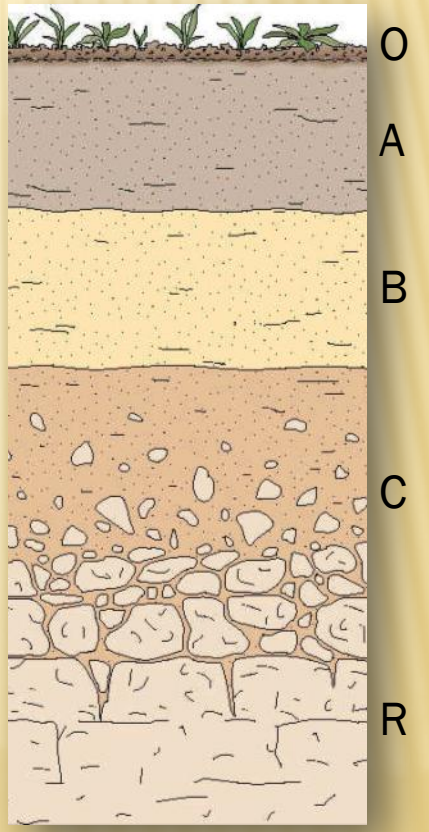
ES PROCEDURES

- ESs are tied to USDA Major Land Resource Areas (MLRA)



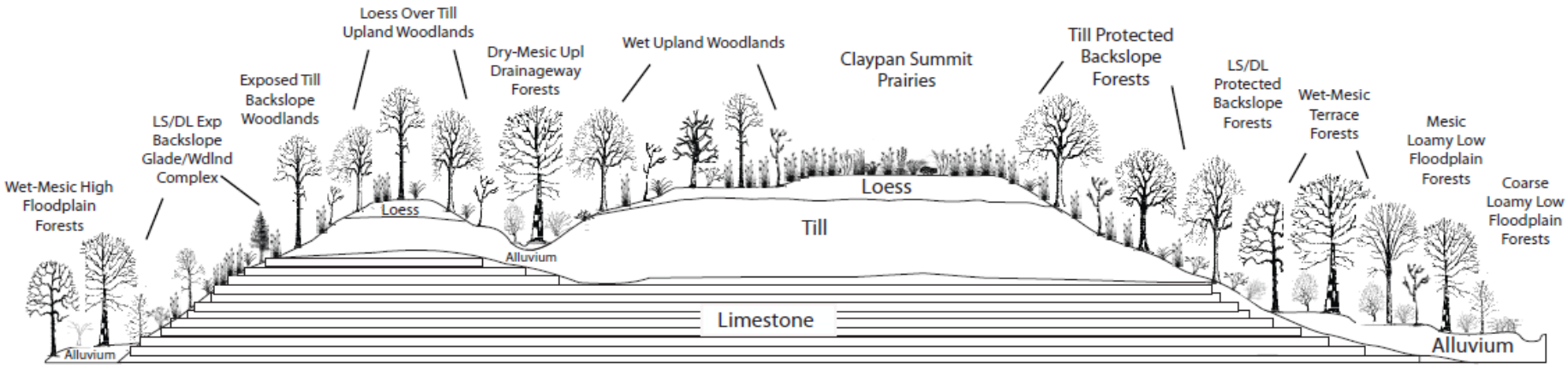
MISSOURI FRAMEWORK FOR ECOLOGICAL SITES

- Statewide, we have identified 8 essential properties that have significant influence on vegetation and site productivity:
  - Landform
  - Parent material
  - Root restriction
  - Base saturation
  - Drainage
  - Texture
  - Flooding
  - Ponding



GENERAL PROCEDURES - EXAMPLE

1) LANDFORMS are identified within a given landscape.
2) PARENT MATERIALS are then used to further subdivide landforms.
3) SOIL PROPERTIES are then used to further subdivide landform/parent material groups



4) Potential natural communities are then tied to each land unit, resulting in ECOLOGICAL SITES

ES NAMING PROCEDURES

Soil/Substrate + Landform + Plant Community

ES NAMING EXAMPLES

- Alfic Chert Exposed Backslope Woodland
- Alfic Chert Protected Backslope Forest
- Alfic Chert Upland Woodland
- Chert Upland Prairie
- Loess Fragipan Upland Flatwoods
- Loamy Floodplain Riverfront Forest
- Mollic Loess Upland Prairie
- Shallow Sandstone Upland Glade/Woodland
- Swamp
- Ultic Chert Upland Pinery Woodland
- Wet Sinkhole

what do they look like?

ECOLOGICAL SITE EXAMPLES

SHALLOW SANDSTONE UPLAND GLADE/WOODLAND

MLRA: 116A, 116B

Soil Series: Ramsey, Basehor

Parent Material: loamy colluvium and sandstone residuum

Landform: upland complex; <15% slope

Restriction: 0”-20” to sandstone bedrock

Base Saturation: very low

Drainage: somewhat excessively well-drained

Vegetation:
- Glade and woodland complex
- Acid glade species and some sandstone specialists
- Blackjack oak, post oak, shortleaf pine
- Very low site productivity

ALFIC CHERT PROTECTED BACKSLOPE FOREST

MLRA: 116A, 116B, 115B, 115C, 134

Soil Series: Goss, Rueter, Alred, Beemont, Gepp, Mano, Hailey

Parent Material: cherty residuum

Landform: protected; > 15% slope

Restriction: none, deep to very deep

Base Saturation: moderate to high

Drainage: Well-drained

Vegetation:
- Mesic and dry-mesic forest indicators
- Generalists common
- White oak, Northern red oak overstory
- Medium-high site productivity

MOLLIC LOESS UPLAND PRAIRIE

MLRA: 109, 113

Soil Series: Grundy, Sharpsburg, Lagonda, Greenton, Ladoga, Pershing, Leonard

Parent Material: loess

Landform: upland complex; <15% slope

Restriction: none

Base Saturation: high

Drainage: Moderately well-drained

Vegetation
- Prairie
- Big bluestem, Indian grass, little bluestem, prairie coneflower, lead plant, prairie willow
- High site productivity

soil features, ecological dynamics, wildlife interpretations

WHAT IS AN ECOLOGICAL SITE DESCRIPTION?

ECOLOGICAL SITE DESCRIPTION

*ESDs are **reports** that describe the various **properties of** ec... refer... th... **histo...** and ... **ecos...** pr... ecol... other interpretations*

Ecological Site Description

Chert Limestone/Dolomite Upland Woodland **F116AY015MO**

- (*Quercus stellata - Quercus marilandica / /Schizachyrium scoparium*)
- (post oak-blackjack oak/ /little bluestem)

An Ecological Site Description (ESD) is a reference document of ecological knowledge regarding a particular land area (ecological site). An ESD describes ecological potential and ecosystem dynamics of land areas and their potential management. Ecological sites are linked to soil survey map unit components, which allows for mapping of ecological sites. (***NOTE:*** *This is a* ...cological information sufficient for ...additional information is developed ...vailable via the Web Soil Survey

...s the Salem Plateau of the Ozark ...ge of the Ozark escarpment, to ...vest, adjacent to the Burlington ...gfield Plateau. The underlying ...ontally bedded Ordovician-aged ...s that dip gently away from the ...Missouri. Cambrian dolomites are ...cted hillslopes. In some places, ...issippian sediments overlie the ...om the gently rolling central ...lissected hillslopes associated with ...e Current and Elevenpoint Rivers.

...ite Upland Woodlands (green areas ...e in the dissected hills of the ..., primarily over the Ordovician- ...p over limestone/dolomite

...opes of 1 to 15%. The site generates runoff to adjacent, downslope ecological sites. This site does not flood.

Soil Features

These soils are underlain with limestone and/or dolomite bedrock at 20 to 60 inches deep. The soils were formed under woodland vegetation, and have thin, light-colored surface horizons. Parent material is slope alluvium over residuum weathered from limestone and dolomite, overlying limestone or dolomite bedrock. They have gravelly to very gravelly and cobbly silt loam surface

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Plants | ESIS | ESD | FSGD | ESI Forestland | ESI Rangeland | ESIS User Guide

Quick Access

- PLANTS
- Plant Materials
- ESIS
- ESD Home
- FSGD
- ESI-Forestland
- ESI-Rangeland

United States Department of Agriculture Natural Resources Conservation Service

The Ecological Site Information System (ESIS) is the repository for the data associated with the collection of forestland and rangeland plot data and the development of ecological site descriptions. ESIS is organized into two applications and associated databases:

ECOLOGICAL SITE DESCRIPTION

- *PHYSIOGRAPHIC FEATURES*
- *SOIL FEATURES*
- *ECOLOGICAL DYNAMICS*
- *PLANT COMMUNITIES*
- *ANIMAL COMMUNITIES*
- CLIMATE FEATURES
- WATER FEATURES
- SITE INTERPRETATIONS
- SUPPORTING INFORMATION

who, what, where, and when

MISSOURI ECOLOGICAL SITE PROJECT

WHO IS INVOLVED?

MDC

- Tom Nichols
- Keri Teal
- Stribling Stuber
- Mike Leahy
- Lisa Potter

NRCS

- Fred Young
- Doug Wallace
- Nate Goodrich
- Mark Kennedy
- Chris Hamilton

UMC

- Tim Nigh
- Dave Hammer

FS

- John Kabrick

DNR

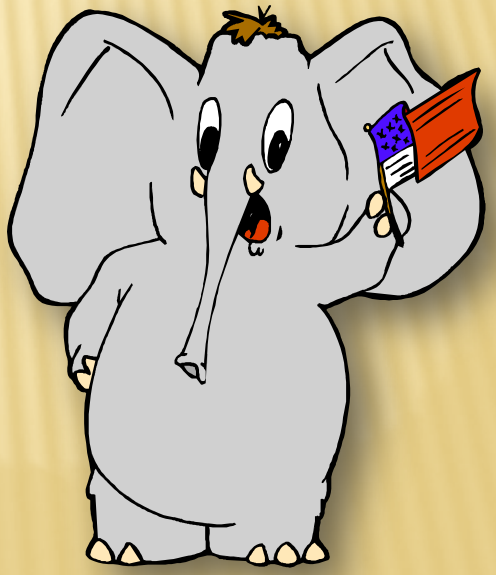
- Dennis Meinert

FWS

- Kelly Srigley-Werner

ESDS FOR MISSOURI: *HOW DO YOU EAT AN ELEPHANT?*

- A fully completed ESD can run 30–60 pages
- We have identified over 290 ecological sites in Missouri
- Complete all ESDs by…2020? Ever?
- How can we use ES/ESDs for conservation planning if we won't have nationally approved ESDs?



OUR SOLUTION: A *PHASED* APPROACH

- *Soil – ES correlations*
  - A statewide legend connecting each soil component to an ecological site
  - Create the soil-ES structure, statewide
- *Provisional ESDs* (6-10 pages)
  - Lean document
  - Just enough for basic conservation planning and resource management
- *Draft ESDs* (12-20 pages)
  - Provisional plus in-depth information on ecological dynamics, wildlife and vegetation communities
- *Correlated ESDs* (30-50 pages)
  - Fully completed robust document per national policy

ESD PROJECT TIMELINE

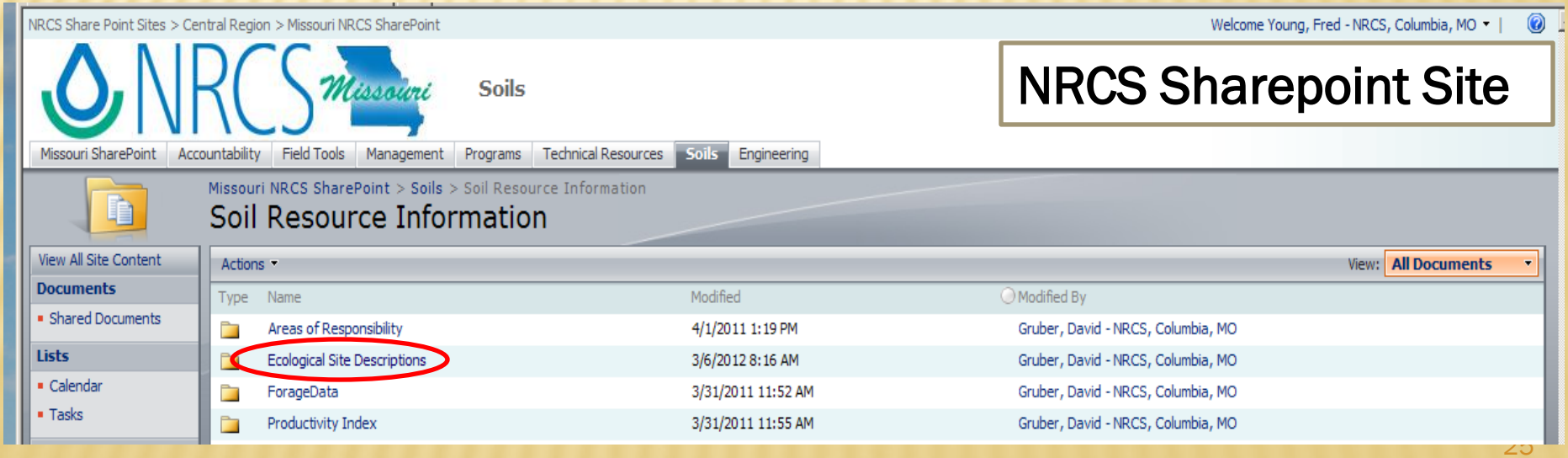
Item	Target	
ES update to field offices (webinars; Area meetings)	April 2012	completed
Statewide soil-ES legend	April 2013	completed
Provisional ESDs complete statewide (phase 1)	May 2013	completed
Provisional ESDs available for conservation planning (in FOTG)	June 2013	completed
Incorporation of ES into conservation planning specifications	2013	started
Training for agency conservationists	July 2013 – Oct 2013	
Draft ESDs (phase 2)	2014	
Correlated ESDs (phase 3)	first ones in late 2013	

things you can use

PRODUCTS

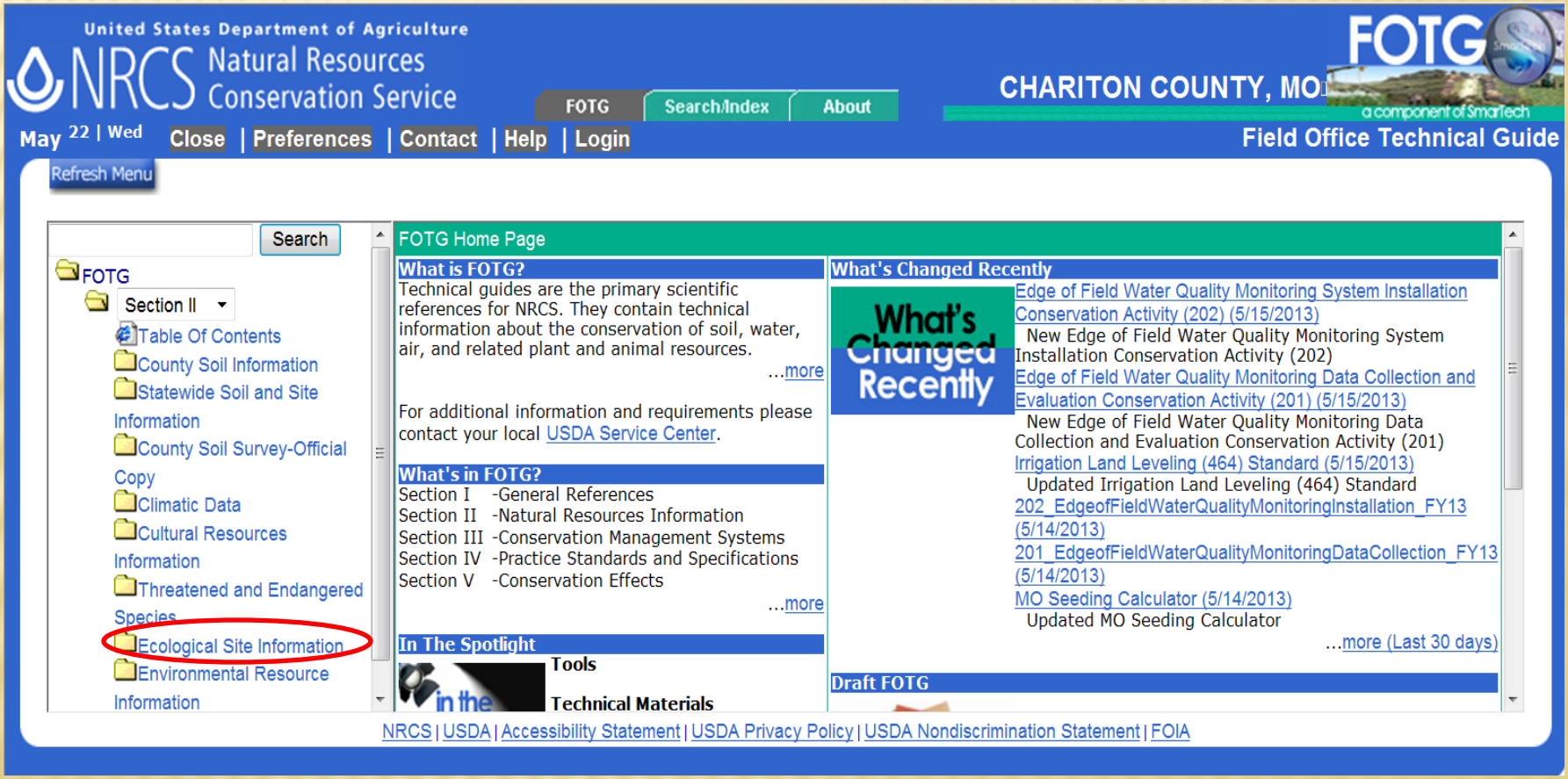
PRODUCTS

1. Description of each ESD using NRCS format, which includes:
   - Physiographic, soil narrative
   - Map of ESD extent
   - Plant lists
   - Ecological dynamics of site
   - *State and Transition Diagram*
   - *Photos of reference communities and degraded states*
   - *Management criteria and guidelines*



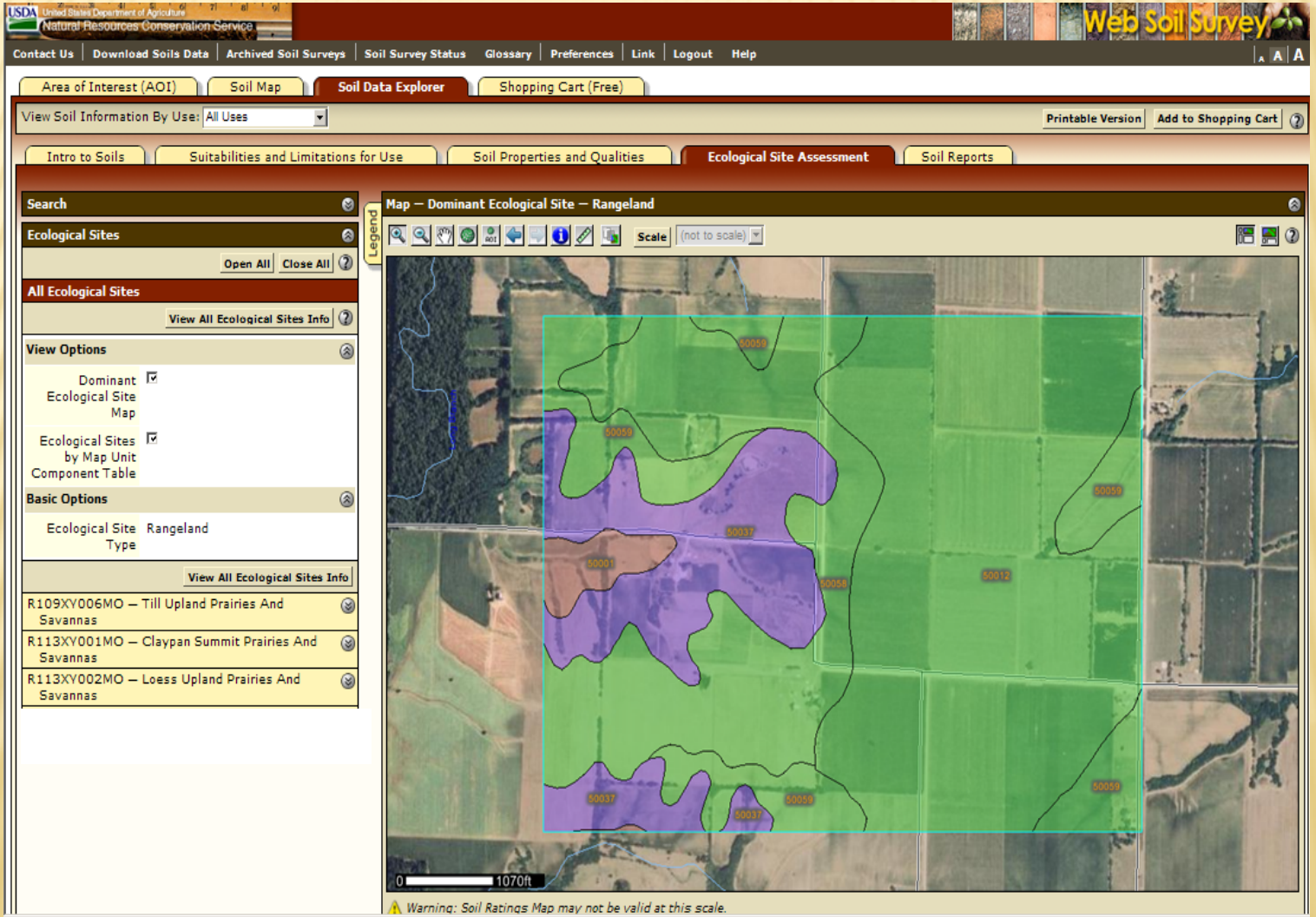
PRODUCTS

2. FOTG postings of Missouri ESDs



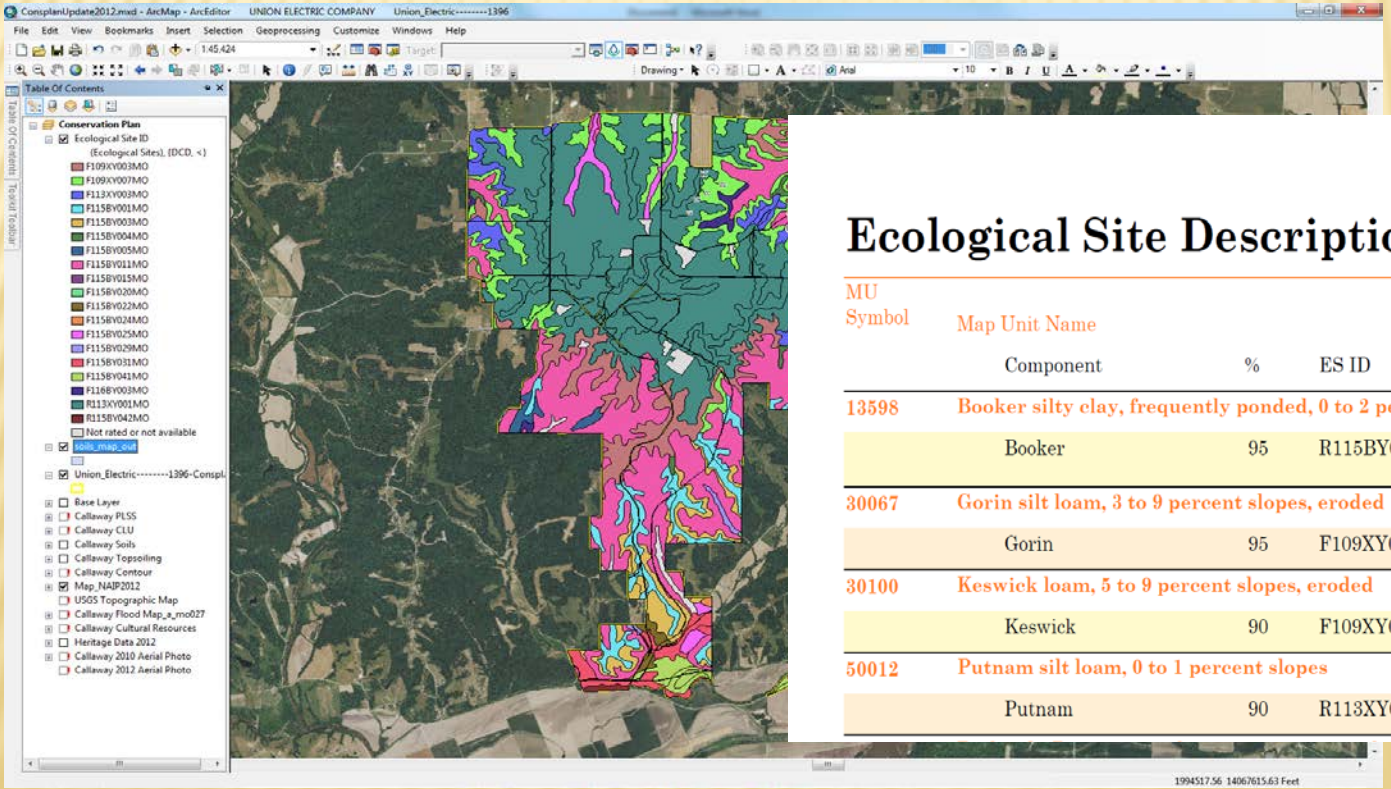
PRODUCTS

3. Web Soil Survey - ES Mapping



PRODUCTS

4. Toolkit map and legend, which includes:
   - Ecological site map
   - Ecological site legend



Ecological Site Descriptions

MU Symbol	Map Unit Name / Component	%	ES ID	Description
13598	Booker silty clay, frequently ponded, 0 to 2 percent slopes, occasionally flooded			
	Booker	95	R115BY042MO	Ponded Floodplain Depression Prairie and Marsh
30067	Gorin silt loam, 3 to 9 percent slopes, eroded			
	Gorin	95	F109XY003MO	Alfic Loess Upland Woodland
30100	Keswick loam, 5 to 9 percent slopes, eroded			
	Keswick	90	F109XY007MO	Alfic Till Upland Woodland
50012	Putnam silt loam, 0 to 1 percent slopes			
	Putnam	90	R113XY001MO	Mollic Claypan Summit Prairie

what's in it for Missouri?

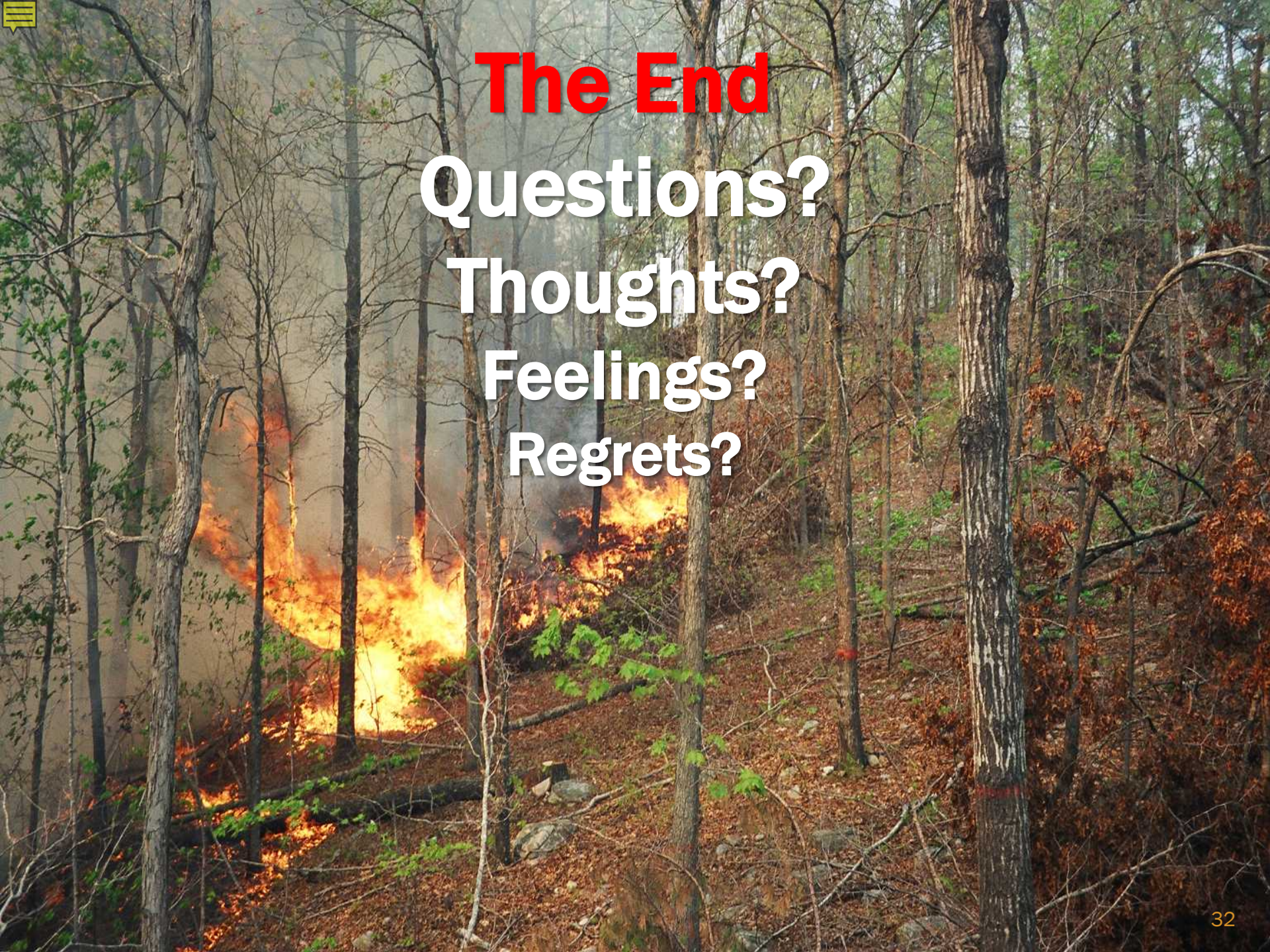
ESD IMPACTS

ESD IMPACTS

- Improved program support *(CRP, EQIP, CSP, WRP)*
- Enhanced application/natural community development *(e.g. 643, 657, CP25, CP38, ANM21)*
- Improved planning and resource management
- Enhanced inter-agency coordination/cooperation

SUMMARY

- ***Multi-agency team*** effort that includes NRCS, MDC, DNR, UMC, FWS, FS
- ***ES/ESDs*** are tied to soil map unit components in NASIS
- ***Phase I*** information will be posted on NRCS Sharepoint/FOTG
- ***ES*** are now a mapping function in Web Soil Survey
- ***ESDs*** will support conservation planning, land management, practice application, and conservation programs


The End
Questions?
Thoughts?
Feelings?
Regrets?