



Western Regional Cooperative Soil Survey
Conference

July 7-12, 2002

Telluride, Colorado

Purpose of Presentation

- Provide a brief overview of Terra
- Describe the data collection protocols Terra supports
- Demonstrate Terra v1.1



NRIS Terra – An Overview

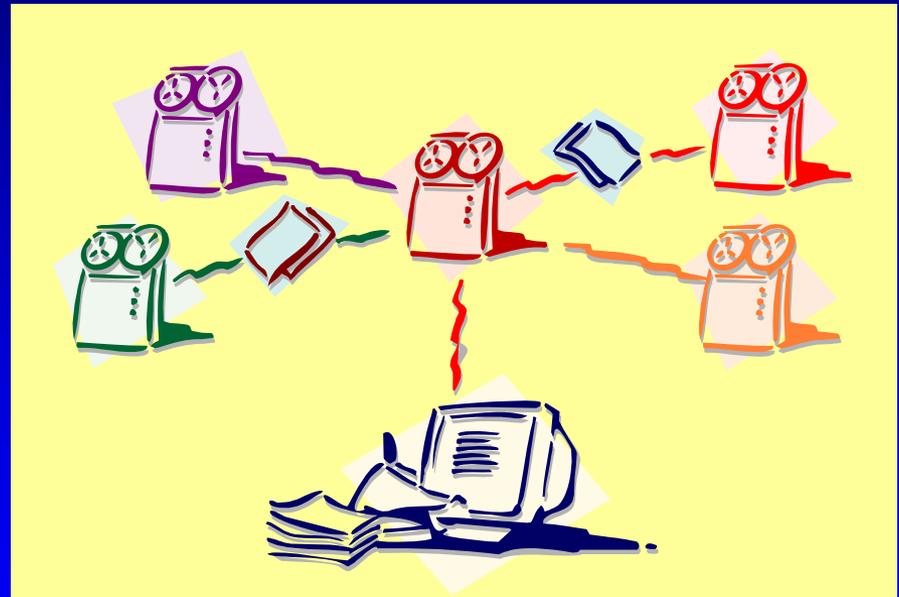


What is NRIS
Terra?

What is NRIS?

NRIS is . . .

. . . a series of
databases . . .



What is NRIS?

- Relational databases
- Analytical tools
- Store and analyze natural resource information
- Provide linkage between tabular and spatial data



NRIS was created to:

- Move to corporate applications
 - Data consistency and accessibility
 - Data validation / coding standardization
 - Data sharing and integration

Increased efficiencies

- Reduce maintenance costs of non-corporate databases
- Consistent tool from site to site



What is NRIS?

Terra is one of six
NRIS modules.

Natural Resource
Information System
(NRIS)

5 Database Modules
+ Tools Module

6 NRIS Modules

- Fauna
- FSVeg
- Human Dimensions
- Terra
- Tools
- Water/Air



Terra Defined

Terra is an Oracle database and set of analysis tools that focus on data collected in five natural resource areas:

- 
- Soils
 - Geology
 - Geomorphology
 - Vegetation
 - Climate

Terra Defined

Terra's initial focus is on supporting these Program Areas:

- Terrestrial Ecological Unit Inventory (TEUI)
- Rangeland Management
- Invasive Plants Inventory
- Specific Core GIS Themes



Terra Defined

Terra is designed to implement:

- ✓ National protocols, such as those being developed by the National TEUI and Range Protocol Teams
- ✓ Corporate standards, such as FGDC
- ✓ Core GIS



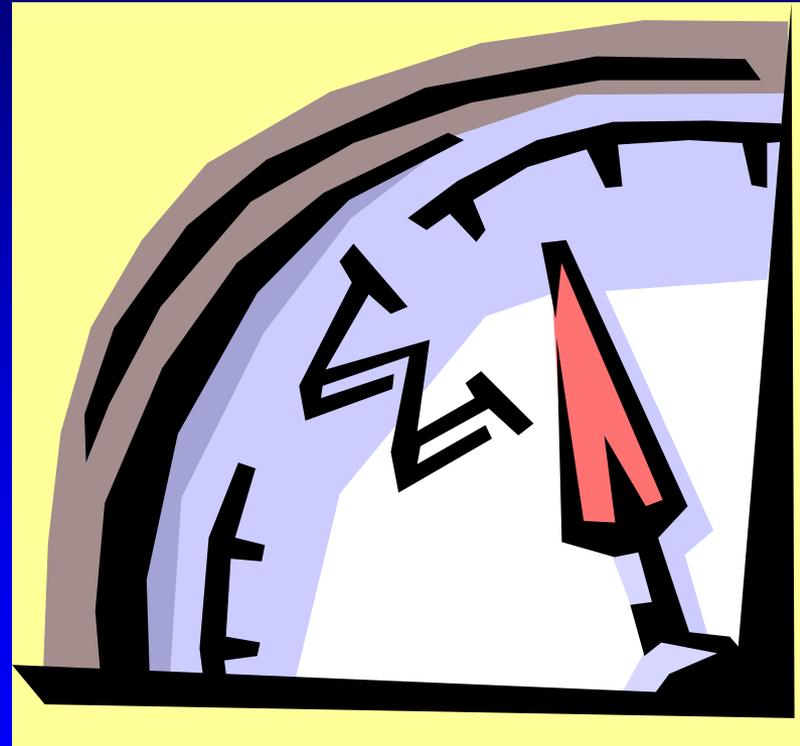


Terra Defined

Terra supports
terrestrial resource
information for:

- Points
- Polygons
- Map Units
- Classifications

... across multiple
scales



Sample Types Supported in Terra

- **Vegetation samples:**
 - ✓ Ocular macroplot
 - ✓ Single species -Invasive Plants
 - ✓ Variable plot
 - ✓ Line intercept
 - ✓ Cover frequency
 - ✓ Seedling/sapling
 - ✓ Snags and down wood
- Site general
- Site geology
- Site landform
- Soil pedons / layers
- Site climate





Interpretations

- **Soils:**
 - ✓ Erosion hazard, rooting depth class, compaction, site productivity, potential erosion roads/trails
- **Timber:**
 - ✓ Timber production, woodland plant competition, seedling mortality
- **Range:**
 - ✓ Forage production, grazing capability, desired condition trend
- **Geology:**
 - ✓ Seismic, volcanic, slope stability, flooding, snow avalanche hazards



Terra Defined

Site General

Sites\Polygon\Sample

Project: B-T EUI | Site ID: B0607B | Sample ID: | Start Date: 09/24/1992

Examiner | Location | **Setting** | Classification | Ground Cover | Map Unit | Aerial Photo | Ground Photo | Comments

Mean Elevation: 9880 | Min Elevation: | Max Elevation: | Elevation UOM: |
Aspect - Azimuth: 44 | Aspect - Cardinal Direction: |
Percent Slope: 15 | Slope Position: BS | Slope Complexity: |
Horizontal Shape: LI | Vertical Shape: LI |
Slope Length: 200.00 | Slope Length UOM: |

Soil Temperature

Temperature: | Temp UOM: | Temp Depth: | Depth UOM: |

Annual Precipitation

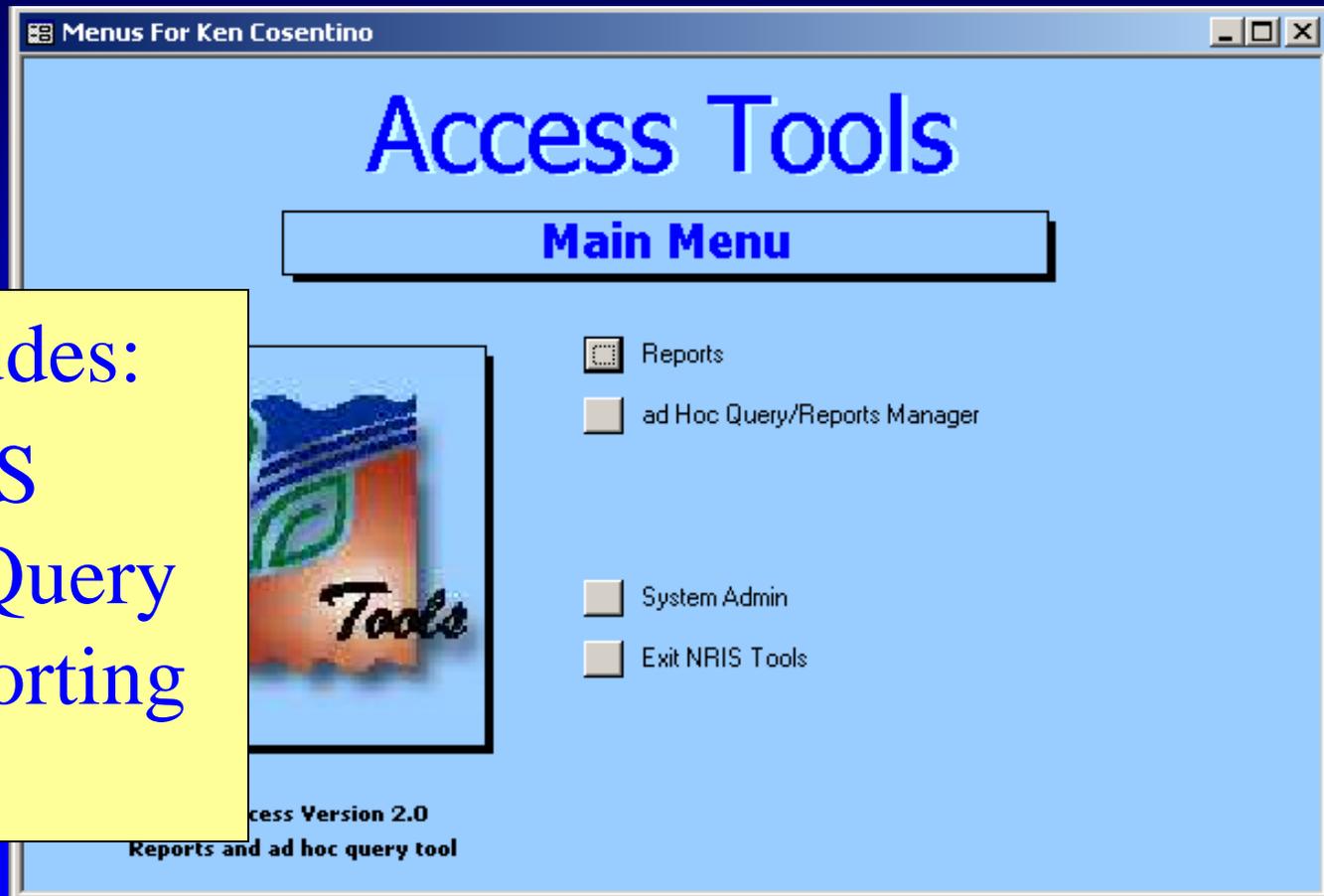
Min Precip.: 27.00 | Max Precip.: 39.00 | Mean Precip.: 33.00 | UOM: Inches |

Bedrock/Surficial

Terra includes:

- Oracle forms for data entry and browsing

Terra Defined



Terra includes:

- NRIS MS Access Query and Reporting Tool

Terra Defined

Terra includes:

- GIS ArcView Extension

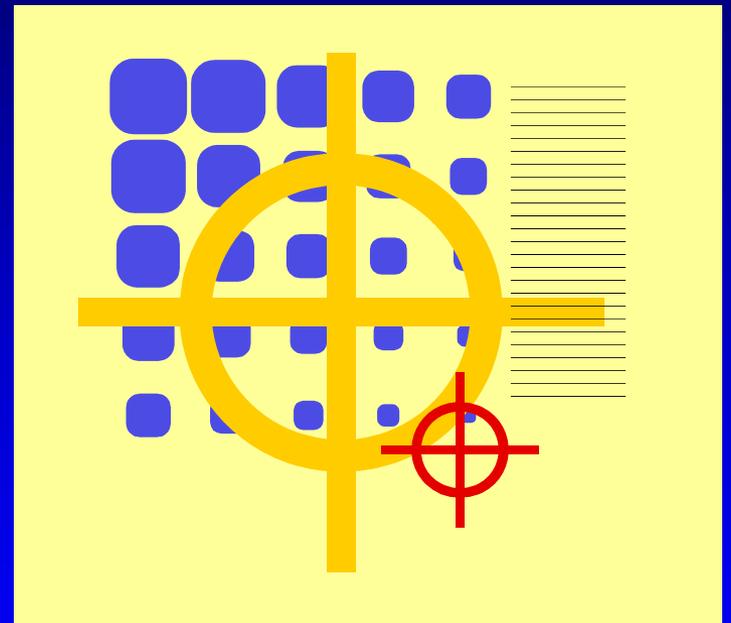
Attributes of Soil R2 Erosion_Hazard C1

Mapu_cn	C1_limit_p	Area	Perimeter	Teu#	Teu-Id	Teu_cn	Srt_muid	Ssa	CkL_muid	A
17960010606	SL	755256.74918	5451.75126	8	7	17960010606	116	C08660-	30RS116	C08660-3
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660-	30RS117	C08660-3
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660-	30RS117	C08660-3
17873010606	SL	581076.98741	12628.79039	12	11	17873010606	131	C08660-	30AL131	C08660-3
17960010606	SL	755256.74918	5451.75126	8	7	17960010606	116	C08660-	30RS116	C08660-3
17955010606	SL	8399.37013	432.86863	15	14	17955010606	134	C08660-	21IH134	C08660-2
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660-	30RS117	C08660-3



Terra Defined

Terra enables Forest Service managers to make informed decisions about management limitations and opportunities during assessments and analyses through TEUI-generated interpretations.



NRIS Terra Users

- **General**
 - ✓ Forest Supervisors, staff officers
- **Interested**
 - ✓ District Rangers, ID teams, GIS coordinators, planners
- **Involved**
 - ✓ GIS Coordinators, specialists, planners
- **Expert**
 - ✓ Analytical resource specialists, GIS coordinators



NRIS Terra – An Overview



What are the
National Range
Vegetation
Protocols?



Terra and Range Management

Five of the 28 identified National Vegetation Protocols have been approved to date:

- ✓ General Form
- ✓ Ocular Macroplot
- ✓ Invasive Plant Inventory
- ✓ Cover Frequency
- ✓ Line Intercept



Range General Form

- The General form will be used with all other Range protocols to provide for the collection of basic information at each data collection site
 - ✓ Admin info – Region, Forest, District
 - ✓ Metadata
 - ✓ Location
 - ✓ Environmental Settings



Invasive Plant Inventory

- Inventory, monitoring and mapping of invasive plant populations
 - ✓ Distribution
 - ✓ Relative abundance of populations
 - ✓ Habitat information
 - ✓ Associated species

NRIS Terra – An Overview



What Core GIS
Themes are
Supported by
Terra?



Core GIS Themes Supported by NRIS Terra

- Ecological map units
- Soil map units (legacy)
- Potential Natural Vegetation (legacy)
- Geology map units



Terra v1.0.3

- Released in June, 2000 and installed at 42 sites
- Supported a variety of non-corporate protocols
- Supported a variety of GIS themes
- Provided a first generation of the MS Access tool and ArcView extension
- First generation for PC-based forms



NRIS Terra – An Overview



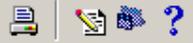
Terra 1.1 – The
Next Version



Terra v1.1

- Scheduled for Release to WO Testing Lab July, 2002
- Supports the corporate business of:
 - ✓ TEUI
 - ✓ Invasive Plants Inventories
 - ✓ Rangeland Assessment
 - ✓ Standard GIS Layers
- Improved Oracle forms, metadata wizards, robust MS Access tools, comprehensive forms help, revised ArcView extension and invasive plants upward reporting from Terra via INFRA
- Implementation driven by Regional work agreements





Exploring - Terra

Find Search

- Terra (User: ALPHA1)
 - Ecological Unit Inventory
 - Soil Resource Inventory
 - Geologic Inventory
 - Potential Natural Vegetation In
 - Invasive Plant Inventory
 - Rangeland Inventory
 - All Data
 - Plant Stewardship
 - All Code Tables
 - Database Search
 - AnalysisTools
 - User Support
 - Administration
 - NRT Nav Maintenance (Internal)
 - NRT DB Objects (Internal)



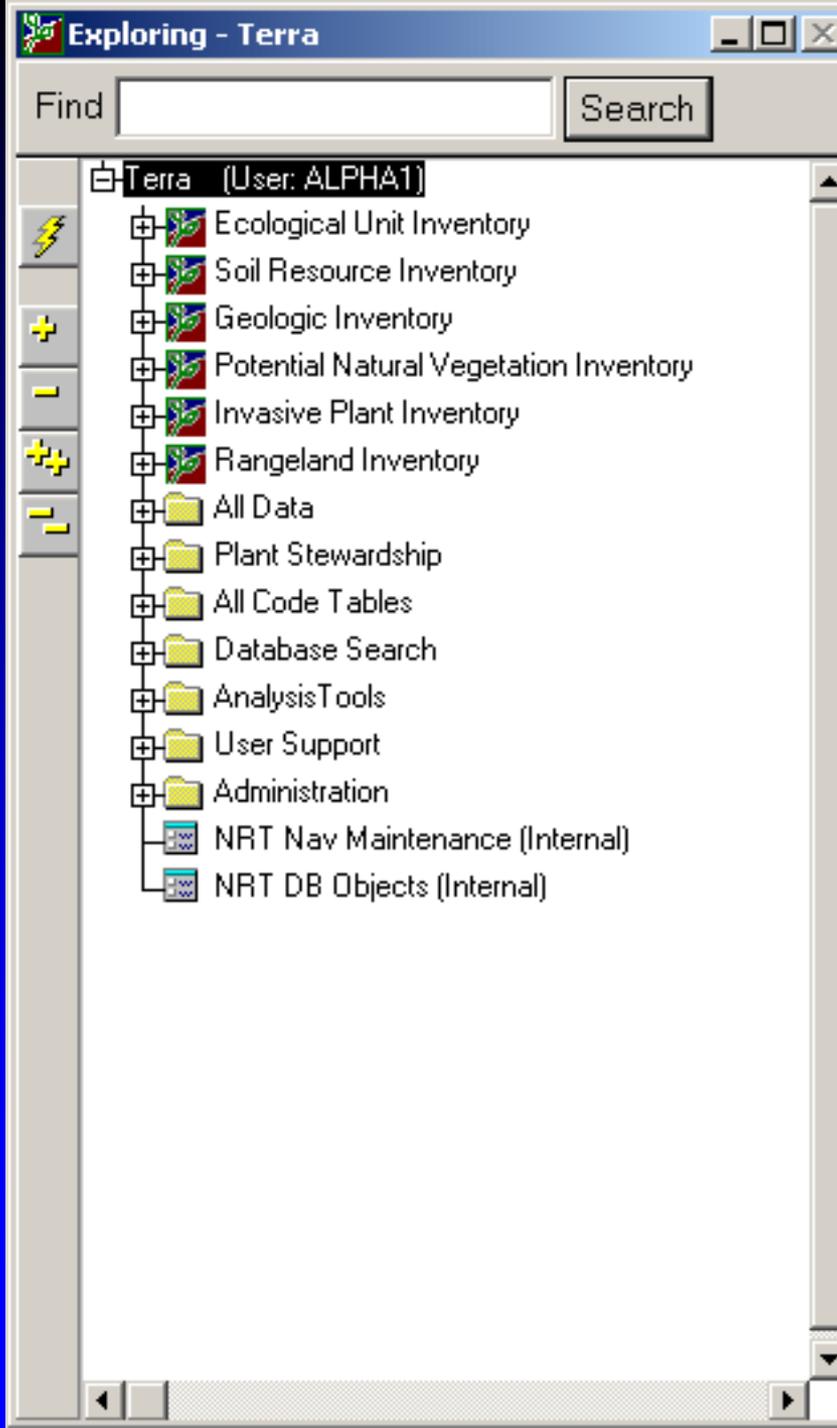
Natural Resource Information System Terra Module

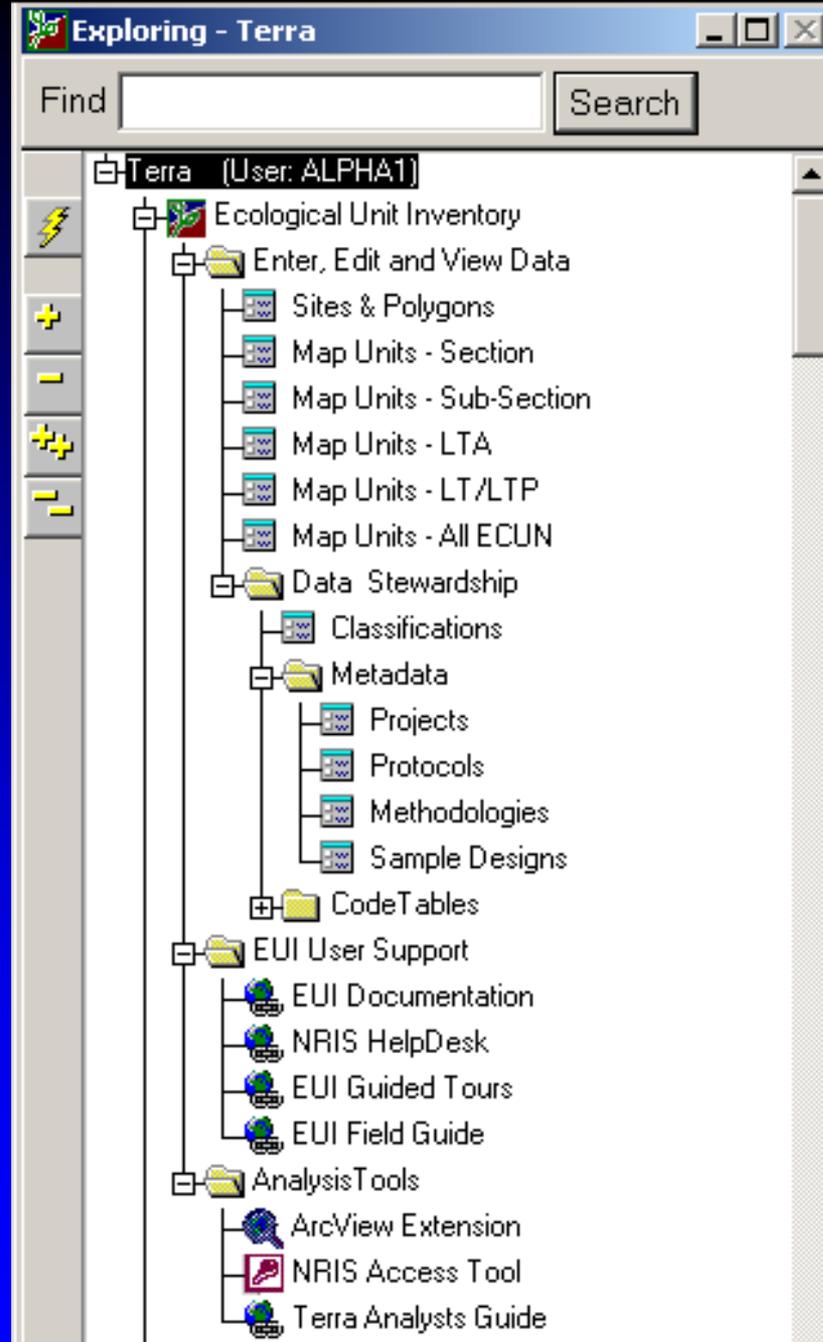
Version 1.1

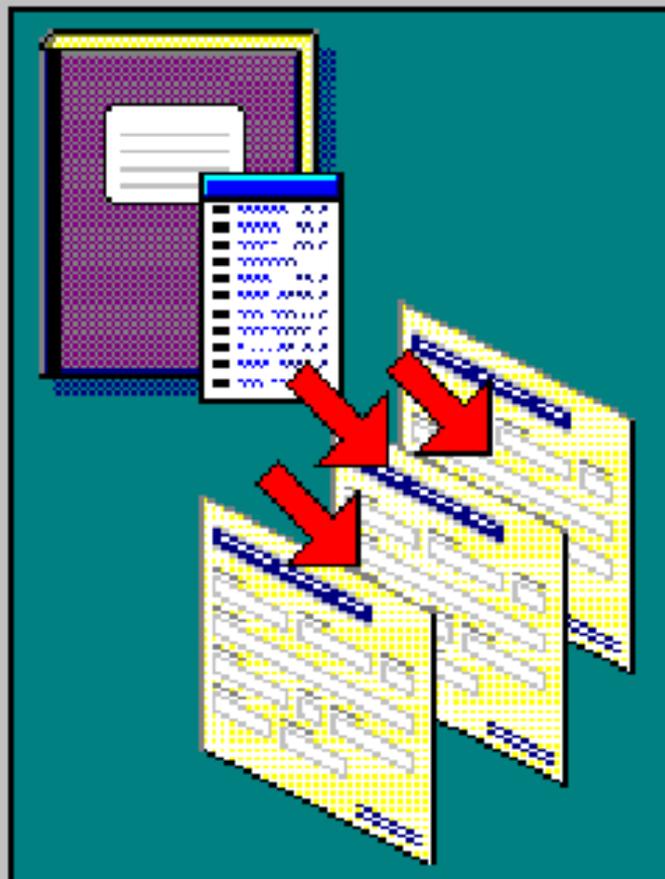
Display at Startup

OK









Site/Polygon Wizard

This Wizard will help you work with Site IDs and their related range data.

At any time during the process, if you wish to return to a previous step, simply click on Previous.

Click on Cancel at any time if you wish to return back to the main menu.

Please select one of the following:

View/Edit

View or edit existing Site IDs. Make sure that some of the key data items (i.e. project, sample id) are available to search by.

Create

Creates a new Site ID. This step requires an existing "Project Metadata" (i.e. project).

Cancel

Click on Next to continue

Next>

Filter your list of Site IDs that you want to work with by using the following criteria:

Site ID Site ID List

Type

Sampling Date Range Format: MM/DD/YYYY
From To

Sample Type

Site Level Sample Level

Project

Method

Examiner

Last Name

First Name

Append to existing worklist

Cancel

Click on Next to continue

<Previous

Next>



Filter your list of Site IDs that you want to work with by using the following criteria:

Site ID

Examiner
Last Name

Type

Sample From Site Find

- Site ID List** [X]
- Site ID
 - A0501B
 - B0601B
 - B0602B
 - B0603B
 - B0604B
 - B0606B
 - B0607B**
 - B0608B
 - C0501B
 - C0502B
 - C0503B
 - C0504B
 - C0505B
 - C0507B
 - C0508B
 - C0509B
 - C0510B
 - C0701B
 - C0702B
 - C0703B

Apply

Click on Next to continue

Filter your list of Site IDs that you want to work with by using the following criteria:

Site ID

Type

Sampling Date Range Format: MM/DD/YYYY
From To

Sample Type
 Site Level Sample Level

Project

Method

Examiner
Last Name
First Name

Append to existing worklist

Click on Next to continue



Select the Site IDs you wish to work with by clicking on each one individually or use the Select All button

Label	Project	Sample Type	Method	Sampling Start Date
B0607B	B-T EUI	GEIN	GENERAL METHODOLOGY	09/24/1992



Select All

Unselect All

Cancel

Click on Finish to continue

<Previous

Finish

Sites & Polygons for Ecological U... [min] [max] [close]

Project B-T EUI (1992-98)

Protocol National TEUI (2090)

Edit Project/Protocol

Method National TEUI (2090) Site

Sampling Start Date 09/24/1992

Business Area Ecological Unit Inventory

Find Sites Rename ID Sample Design

Data Entry Form

BEDROCK/SURFICIAL

Go

- Sites/Polygons
 - B0607B
 - Cover Freq Baseline ID
 - Density Baseline ID
 - Line Intercept Baseline ID
 - Noxious Weed
 - Ocular Plot ID
 - Point Cover Baseline ID
 - Robel Plot ID
 - Seedling Plot ID
 - Soil Pedon ID
 - Tree Point or Cluster ID



Project B-T EUI (1992-98)

Protocol Ecological Unit Inventory

Edit Project/Protocol

Method General Methodology

Sampling Start Date 09/24/1992

Find Sites Rename ID Sample Design

Data Entry Form

SITE GENERAL [dropdown] Go

- SITE GENERAL
- BEDROCK/SUFICIAL
- SITE SAMPLE DESIGN
- SITE INFO
- SITE PROJECTS
- CLASSIFICATION LINK
- MAP LINK
- LOCATION
- EXAMINER
- REFERENCE POINTS

- Seedling Plot ID
- Soil Pedon ID
- Tree Point or Cluster ID





Site General

Sites\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B		09/24/1992

- Examiner
- Location
- Setting
- Classification
- Ground Cover
- Map Unit
- Aerial Photo
- Ground Photo
- Comments

Examiner Last Name	First Name	Middle Name	Examiner Role
TART	DAVE		

Manage Examiners

Bedrock/Surficial



Sites\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B		09/24/1992

Examiner	Location	Setting	Classification	Ground Cover	Map Unit	Aerial Photo	Ground Photo	Comments
----------	----------	---------	----------------	--------------	----------	--------------	--------------	----------

Ownership	Region	National Forest	District
	04	03	07
State	County Number	County Name	
WY	035	Sublette	

Quads

USGS Quad Number	USGS Quad Name
Forest Quad Number	Forest Quad Name

Legal Description

Meridian	Township/Dir Range/Dir	SEC	Q SEC	QQ	QQQ	QQQQ
			NW	NW		

Latitude and Longitude

Datum	Precision	Prec. UOM
NAD-27	4	
Latitude: Degrees	Minutes	Seconds
43 N	19	2.00
Longitude: Degrees	Minutes	Seconds
110 W	12	9.00

UTM

UTM Datum	UTM Zone
	12
Easting	Northing
564657.07	4796136.65

GPS

Lat Dec Deg	Long Dec Deg	
SD Low	SD High	SD UOM
Precision	Refresh Latitude/Longitude based on GPS Data	

Location Details

Bedrock/Surficial



Sites\Polygon\Sample

Project Site ID Sample ID Start Date
 B-T EUI B0607B 09/24/1992

Examiner Location **Setting** Classification Ground Cover Map Unit Aerial Photo Ground Photo Comments

Mean Elevation 9880 Min Elevation Max Elevation Elevation UOM
 Aspect -Azimuth 44 Aspect - Cardinal Direction
 Percent Slope 15 Slope Position BS Slope Complexity
 Horizontal Shape LI Vertical Shape LI
 Slope Length 200.00 Slope Length UOM

Soil Temperature

Temperature Temp UOM Temp Depth Depth UOM

Annual Precipitation

Min Precip. Max Precip. Mean Precip. UOM
 27.00 39.00 33.00 Inches

Bedrock/Surficial

Sites\Polygon\Sample

Project: B-T EUI Site ID: B0607B Sample ID: Start Date: 09/24/1992

Examiner Location Setting **Classification** Ground Cover Map Unit Aerial Photo Ground Photo Comments

Code	Level	Class Set Name	Short Name	Geom Gen	Dom *	Modal
HFI	PVSE	X	FEID	A	2	X
ET084	ECTY	X	Grassland, Lithic Cryoborolls	A	2	N
	...					
	...					
	...					
	...					
	...					
	...					
	...					
	...					
	...					

Class Name: Class Phase:

Bedrock/Surficial



Sites\Polygon\Sample

Project: B-T EUI Site ID: B0607B Sample ID: Start Date: 09/24/1992

Examiner Location Setting Classification Ground Cover Map Unit Aerial Photo Ground Photo Comments

Photo Set	Photo Label *	Photo Type *	Film Type	Photo Roll	Photo Exposure	Photo Date
1992 TEUI	Mt. Hood from Trillium Lake	PHOTO	DI	1992-11	18	07/11/1992

Photo Archive Location
Mt Hood public affairs repository

Photo Description
View of Mt Hood taken from the south side of Trillium Lake, looking north

File Name File Directory



View Image

Bedrock/Surficial



Project B-T EUI (1992-98)
Protocol National TEUI (2090)
[Edit Project/Protocol]

Method National TEUI (2090) Site

Sampling Start Date 09/24/1992

Business Area Ecological Unit Inventory

[Find Sites] [Rename ID] [Sample Design]

Data Entry Form
SOIL PEDON [Go]

Sites/Polygons

- B0607B
 - Cover Freq Baseline ID
 - Density Baseline ID
 - Line Intercept Baseline ID
 - Noxious Weed
 - Ocular Plot ID
 - Point Cover Baseline ID
 - Robel Plot ID
 - Seedling Plot ID
 - Soil Pedon ID
 - B0607B**
 - Tree Point or Cluster ID



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B	B0607B	09/24/1992

Soil Pedon

Pedon Label	B0607B	TUD Modal	N	OSD Modal	N
MUD Modal	Y	Box Sample	Y	Lab Sample	N
				Complete Pedon	Y

Properties

Qualities

Extra-Structural Cracks

User-Defined

Pedon Depth Class	S	Depth Observed	18.00	Depth Obs. UOM	
Depth Continues	N	Excavation Difficulty		Excavation Method	
Restriction Kind	PARA	Restriction Hardness		Restriction Depth	18.00
Rest. Depth UOM		Moist Status		Drainage Class	WD
Permeability Class		Permeability Class Contrasting		Salinity Class	
Infiltration Rate		Infiltra. Rate UOM		Capability Subclass	
Stone Boulder Class		Capability Class			

Soil 2500

Control Sections

Layer/Horizon

Pedon Features

AWC

Chem/Phys Properties



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B	B0607B	09/24/1992

Soil Pedon

Pedon Label	B0607B	TUD Modal	N	OSD Modal	N
MUD Modal	Y	Box Sample	Y	Lab Sample	N
				Complete Pedon	Y

Wind Group		Wind Index		Frost Action	
Subsidence Initial		Subsidence Total		Subside Depth UOM	Inches
Hydrologic Group		Runoff		T Factor	



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	A0501B	A0501B	09/23/1992

Soil Pedon

Pedon Label

Soil Layer

Horizon Designation	Seq No *	Horizon/Layer *	Layer Name	Depth Top	Depth Bottom	Thickness	UOM	Boundary Soil Surf *	Distinct
A11	1	SOILPRP		0	4	4	Inches	N	C

Update View

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed Rubbed	R.F.1 % Vol



Site\Polygon\Sample

Project: B-T EUI | Site ID: A0501B | Sample ID: A0501B | Start Date: 09/23/1992

Soil Pedon

Pedon Label: a0123

Soil Layer

Horizon Designation	Texture					Rock Frag			Physical State	Moisture State *
	Percent Weight			In Lieu Of Text	Unrubbed %	Rubbed %	Shape	Type		
A11			8				GR	15	CR	M

Update View

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed Rubbed	R.F.1 % Vol
A11								



Site\Polygon\Sample

Project Site ID Sample ID Start Date
 B-T EUI A0501B A0501B 09/23/1992

Soil Pedon

Pedon Label a0123

Soil Layer

Horizon Designation
 A11

Update View

			Color						Structure				
Physical State	Moisture State *	Pct Horizon	Hue	Value	Chroma	Grade	Size	Shape	Parting To				
CR	M		10YR	3	3	1	F	GR	X				
...
...
...

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed Rubbed	R.F.1 % Vol
A11								



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	A0501B	A0501B	09/23/1992

Soil Pedon

Pedon Label

Soil Layer

Horizon Designation

Update View

Special Feature						Special Feature Color		
Contrast	Distinctness	Location	Size	Boundary	Shape	Thickness	Moisture State * Hue	Value
<input type="text"/>	<input type="text"/>	<input type="text"/>						
<input type="text"/>	<input type="text"/>	<input type="text"/>						

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed	R.F.1
							Rubbed	% Vol
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	A0501B	A0501B	09/23/1992

Soil Pedon

Pedon Label

Soil Layer

Horizon Designation

Update View

Special Feature						Special Feature Color		
Contrast	Distinctness	Location	Size	Boundary	Shape	Thickness	Moisture State * Hue	Value
<input type="text"/>	<input type="text"/>	<input type="text"/>						
<input type="text"/>	<input type="text"/>	<input type="text"/>						

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed Rubbed	R.F.1 % Vol
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								



Site\Polygon\Sample

Project Site ID Sample ID Start Date
 B-T EUI A0501B A0501B 09/23/1992

Soil Pedon

Pedon Label a0123

Soil Layer

Horizon Designation
A11

Special Feature

Contrast	Distinctness	Location	Size	Boundary	Shape	Thickness

Special Feature Color

Moisture State * Hue	Value

Update View

Soil Layer View

Horizon Designation	Seq	Depth	Bound.	Texture	Sand/Silt/Clay	In Lieu Of Text	Unrubbed Rubbed	R.F.1 % Vol
<input checked="" type="checkbox"/> A11	1	0-4	CS	GRSL	8			GR 15
<input type="checkbox"/> A12	2	4-10	GS	GRSL	10			GR 20
<input type="checkbox"/> B1	3	10-18	CS	GRSL	10			GR 25
<input type="checkbox"/> B12	3	10-18	CS	GRSL	10			
<input type="checkbox"/> B2	4	18-28	CW	GRVL	19			GR 30
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								



Map Unit

Project *

Protocol *

Methodology *

Map Type * General Location

Map Level * Map Subtype

Delineation Source Agency

Map Unit Components

Map Unit

Type Level Project Symbol

Name

Map Unit Components

Comp Label *	Component		Geom Gen	Component Area	Area UOM	Dominant Comp	Geographic Applicability
	Actual Pct	Relative Pct					
<input type="text" value="1 ↓"/>	<input type="text" value="50"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MA ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="2 ↓"/>	<input type="text" value="25"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MA ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="3 ↓"/>	<input type="text" value="3"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MI ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="4 ↓"/>	<input type="text" value="3"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MI ↓"/>	<input type="text" value="" ↓"=""/>

- Hydro
- Setting
- Ground Cover
- Interpretation
- Climate
- Veg Summary
- Site
- Concept

Component Composition

Dominance *	Class Code	Class Level	Class Set	Class Short Name	Class Name	Class Phase
<input type="text" value="1"/>	<input type="text" value="048AY253CO ↓"/>	<input type="text" value="PVES"/>	<input type="text" value="NRCS ECOS"/>	<input type="text" value="WET SUBALPINE"/>	<input type="text" value="WET SUBALPINE"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="1"/>	<input type="text" value="" ↓"=""/>	<input type="text" value="SEPH"/>	<input type="text" value="GRAND ME"/>	<input type="text" value="Aley, Warm"/>	<input type="text" value="Loamy-skeletal, mixed Typic Cr"/>	<input type="text" value="WARM ↓"/>



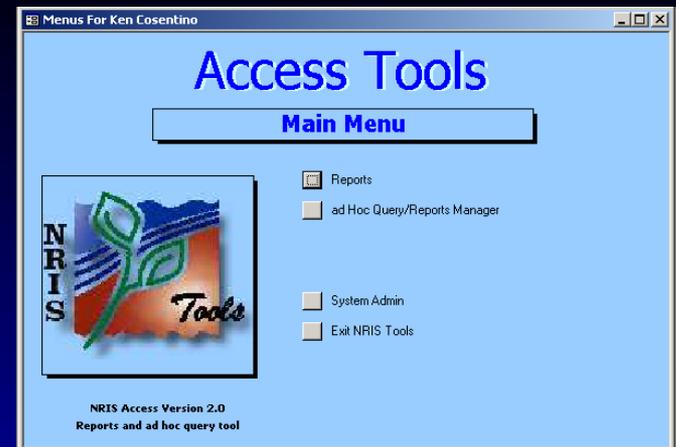
NRIS Terra – An Overview



Utilizing the
NRIS MS
Access Tool



What is the NRIS Access Tool

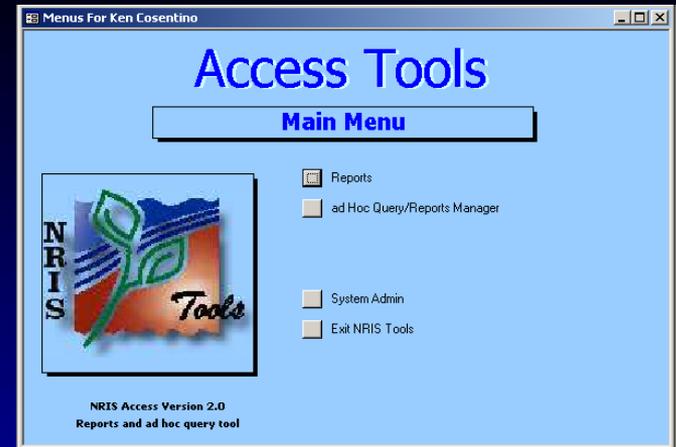


- The MS Access Tool v2.0 provides point & click access to Oracle Data without the need to know Terra database structure or SQL query language
- Preloaded with queries and reports
- Connection is “live”. Data can be copied out for further external analysis.
- Provides methodology for quick, flexible corporate distribution of custom reports/queries.
- Utilized by multiple NRIS modules



MS Access

● Reports Interface



Select Report Group

List of reports appear

Select Report

Description appears

Build Criteria

pick from avail fields

pick operator

fill in appropriate value

Click Print preview

Reports Dialog

Report Group: Terra - Noxious Weeds (sites) Selection Criteria: Clear

Report:
Noxious weed infestation by year
Noxious weed treatments by year

Lists treatment method, treated area and noxious weed species grouped by year.

AND/OR	Field	Comparison	Value
AND	TREATMENT_YEAR	=	
	PROJECT_NAME	<>	
	LEVEL_1_SAMPLE_LABEL	<>	
	LEVEL_2_SAMPLE_LABEL	>	
	PLNTMSTR_SYMBOL	>=	
	GENUS	<	
	SPECIES	<=	
	VERNACULAR	Like	
		Not Like	

1) Click Report Group, select one. 2) Select one of the available reports. 3) Enter Criteria if you wish. 4) click preview, print or datasheet mode.



Maximum Rain Fall by Map Unit

MAP_UNIT_SYMBOL	MAP_UNIT_NAME	MAXIMUM
1701	Alpine Cirques, Ro	55
1801	Alpine Ridges, Rub	60
2344	Subsummit Morain	31
2345	Subsummit Morain	36
2346	Subsummit Morain	32
2351	Subsummit Morain	35
2401	Subsummit Upland	52
2441	Subsummit Upland	38
2442	Subsummit Upland	32
2443	Subsummit Upland	
2461	Subsummit Upland	47
2511	Subsummit Bottom	41
2601	Subsummit Sideslo	41
2602	Subsummit Sideslo	31
2641	Subsummit Sideslo	40
2642	Subsummit Sideslo	31
2861	Subsummit Ridges,	59
3113	Sedimentary Flood	24
3114	Sedimentary Flood	28

MS Access

Query Manager

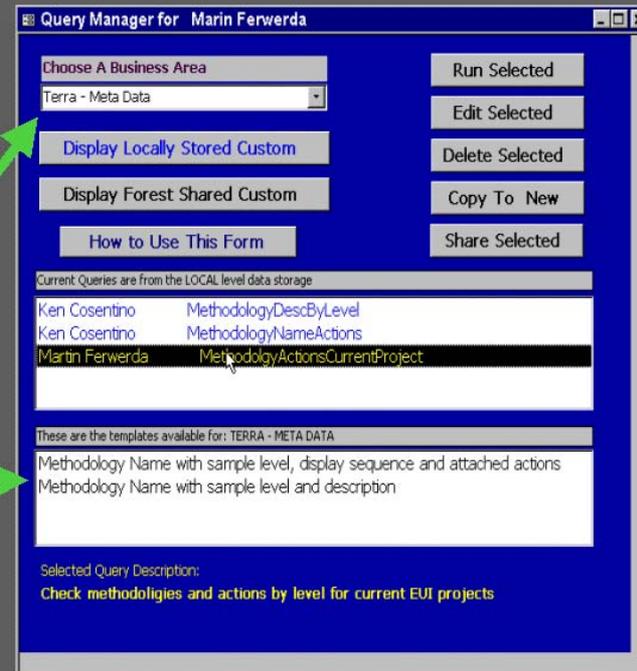


MS Access as an ad hoc browser

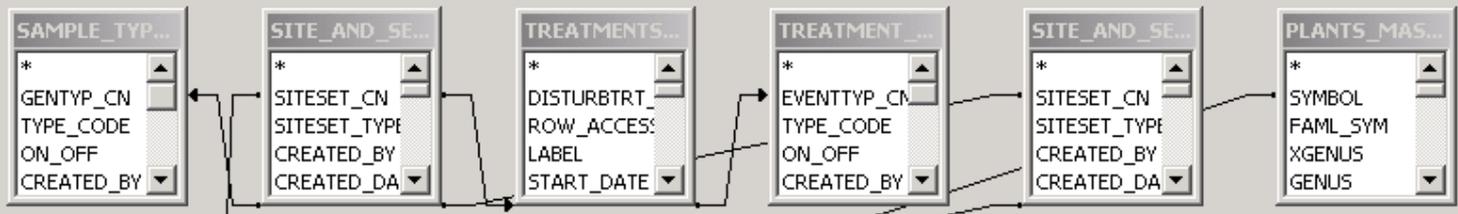
The Ad Hoc Interface

Query Template Manager

1. Select Business Area
2. Select template query
3. Click "Copy to New"
4. Query is copied into "Current Queries" Window where it can be edited.



test : Select Query



Field:	TREATMENT_YEAR	PROJECT_NAME	LEVEL_1_SAMPLE_L	LEVEL_2_SAMPLE_L	PLNTMSTR_SYMBOL	GENUS	SPECIES	VERNACULAR
Table:		PROJECTS_NRIS_V'	SITE_AND_SETTING	SITE_AND_SETTING	PLANT_GRP_MEASL	PLANTS_MASTER_V	PLANTS_MASTER_V	PLANTS_MASTER_V
Sort:	Descending							
Show:	<input checked="" type="checkbox"/>							
Criteria:								
or:								



MAP_UNIT_S	MAP_UNIT_NAME	CLIMATE_TYPE	MINIM	MEAN	MAXIMUM
1701	Alpine Cirques, Rock Outcrop - Tundra - Willow Cor	Snow precipitation	20	34	40
1701	Alpine Cirques, Rock Outcrop - Tundra - Willow Cor	Mean Annual Air Temp	1	2	12
1701	Alpine Cirques, Rock Outcrop - Tundra - Willow Cor	Frost Free - Days of t	3	5	8
1701	Alpine Cirques, Rock Outcrop - Tundra - Willow Cor	Mean Annual Precipita	33		55
1801	Alpine Ridges, Rubbleland - Tundra Complex	Mean Annual Precipita	35		60
2344	Subsummit Moraines, Subalpine Fir Complex	Mean Annual Precipita	23		31
2345	Subsummit Moraines, Spruce/Fir - Whitebark Pine -	Mean Annual Precipita	29		36
2346	Subsummit Moraines, Subalpine Fir - Meadow Com	Mean Annual Precipita	28		32
2351	Subsummit Moraines, Meadow - Grassland Comple	Mean Annual Precipita	30		35
2401	Subsummit Uplands, Rock Outcrop - Tundra - Willov	Mean Annual Precipita	41		52
2441	Subsummit Uplands, Spruce/Fir - Rock Outcrop Cor	Mean Annual Precipita	31		38
2442	Subsummit Uplands, Subalpine Fir - Rock Outcrop C	Mean Annual Precipita	24		32
2443	Subsummit Uplands, Spruce/Fir - Willow - Rock Out	Mean Annual Precipita	33		43
2461	Subsummit Uplands, Tundra - Willow - Rock Outcro	Mean Annual Precipita	35		47
2511	Subsummit Bottoms, Willow - Meadow Complex	Mean Annual Precipita	26		41
2601	Subsummit Sideslopes, Rock Outcrop - Whitebark F	Mean Annual Precipita	29		41
2602	Subsummit Sideslopes, Rock Outcrop - Whitebark F	Mean Annual Precipita	20		31
2641	Subsummit Sideslopes, Spruce/Fir Complex	Mean Annual Precipita	31		40
2642	Subsummit Sideslopes, Subalpine Fir Complex	Mean Annual Precipita	20		31

Record: 1 of 117



NRIS Terra – An Overview



Terra ArcView
Extension

NRIS Terra ArcView Extension

ArcView GIS 3.2

File Edit Table Field Window Help

0 of 282 selected

View1

EUI Polygons

- C1_Prv Series
 - ABLA-PIEN
 - ARCA13
 - GAREX
 - PERL15
 - POAN3
 - POTR5
 - QUGA
 - No Data
- Soil R2_Erosion_Hazard C1
 - MO-Moderate
 - SE-Severe
 - SL-Slight
 - No Data
- Climate Zones
 - Lower Montane
 - Lower Montane and Montane
 - Montane
 - Montane and Subalpine
 - Semiarid, dry phase
 - Subalpine
 - No Data

Terra Interpretations:

Select Interpretation Category:

Description

Aviation/fire
Ecological or ecosystem
Engineering
Fisheries

Select Interpretation Type:

Chemical site preparation CHEMSITE
Log landings LOGLAND
Mechanized site preparation and planting equipment MECHPLAN

Component Option:

Component: C-1 C-2 C-3

Restrictive Feature: C1-P1 C1-P2 C1-P3

Most Limiting Value

CANCEL APPLY

Attributes of Soil R2_Erosion_Hazard C1

Mapu_cn	C1_limit_p	Area	Perimeter	Teu#	Teu-1f	Teu_cn	Srt_mud	Ssa	CA_mud	A
17960010606	SL	755256.74918	5451.75126	8	7	17960010606	116	C08660	30RS116	C08660-3
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660	30RS117	C08660-3
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660	30RS117	C08660-3
17873010606	SL	561076.96741	12626.79039	12	11	17873010606	131	C08660	30AL131	C08660-3
17960010606	SL	755256.74918	5451.75126	8	7	17960010606	116	C08660	30RS116	C08660-3
17955010606	SL	8399.37013	432.86863	15	14	17955010606	134	C08660	21IH134	C08660-2
17893010606	SE	1725036.72713	7897.05550	2	1	17893010606	117	C08660	30RS117	C08660-3



Purpose of Extension

- Provides a consistent format to browse and display terrestrial data
- No knowledge of ArcView is required
- Fast easy way to produce maps and display data from Terra
- Point and click functionality
- User does not need to know Terra structure or SQL to use extension
- The Terra Extension is automatically loaded when ArcView is started via the Terra Forms



GIS Themes Supported

- TEUI (soils, geology, landforms, vegetation and climate) at multiple scales
 - ✓ LTA
 - ✓ LT/LTP
- Soils
 - ✓ Soil Resource Inventory
- PNV
 - ✓ Legacy Data
- Geology

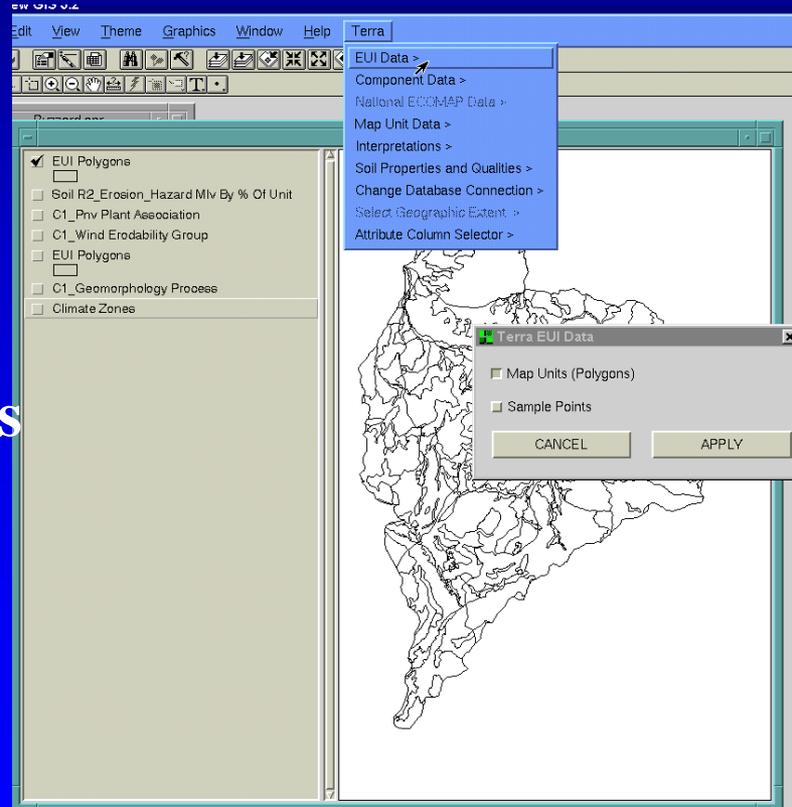


Terra Extension

TEUI Data

Displays sample points or line work for TEUI Map Units or TEUI Site data.

The GIS foundation links the spatial coverages to the database and provides for clipping and viewing of multiple extents

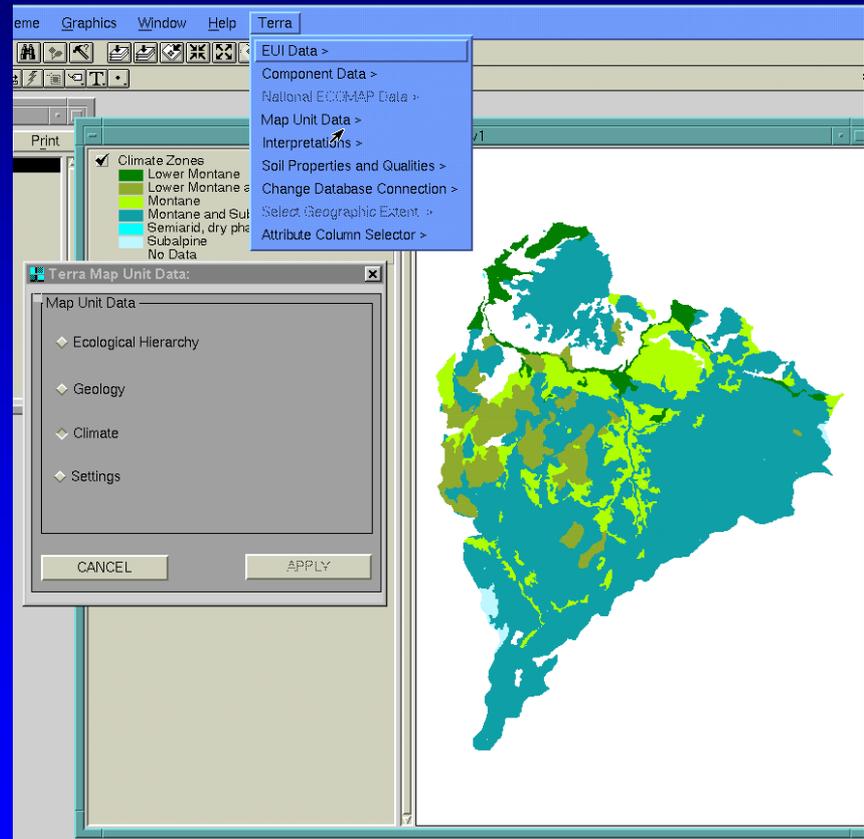


Terra Extension

Map Unit Data

Descriptions that apply to the entire Map Unit

- **Ecological Hierarchy** – Displays levels of TEUI mapping (LT/LTP or LTA) if available.
- **Geology** – Displays Geologic Age, Lithology and Stratigraphy, if available
- **Climate** – Rainfall/Snowfall, Frost free days and Climate Zones.
- **Settings** – Slope, Aspect, Elevation.

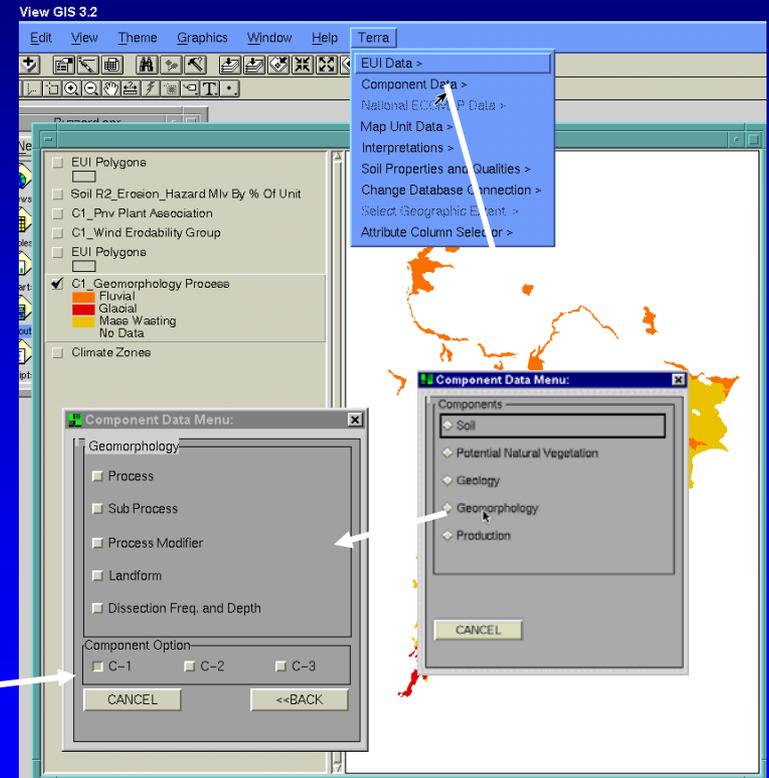


Terra Extension

Component Data

One of three menu choices that access information attached to “components.”

Provides access to “classifications” and associated data, grouped by subject area.



C1 = Most Dominant component by % of map unit



Terra Extension

Interpretations

Interpretations are also attached to components.

Interpretation types are grouped by categories:

Soils

Timber

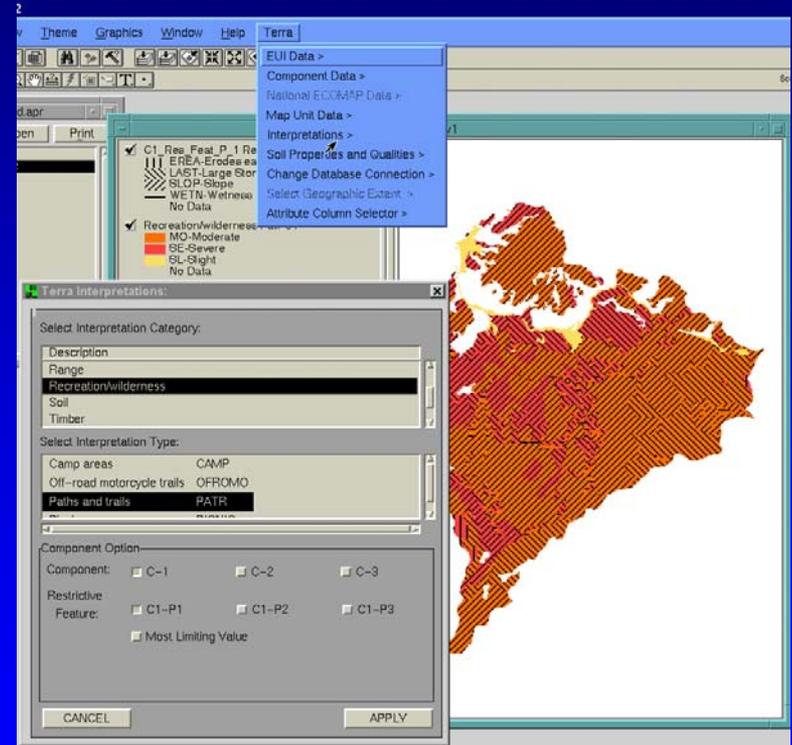
Recreation

Geology

Engineering

Wildlife

Range

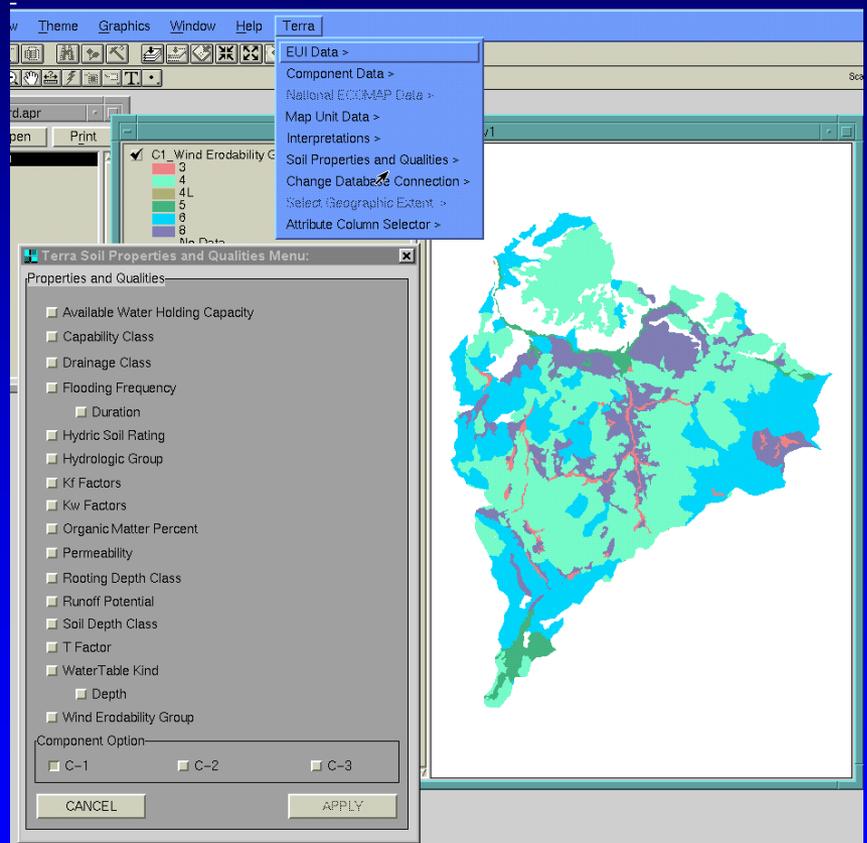


Terra Extension

Soil Properties & Qualities

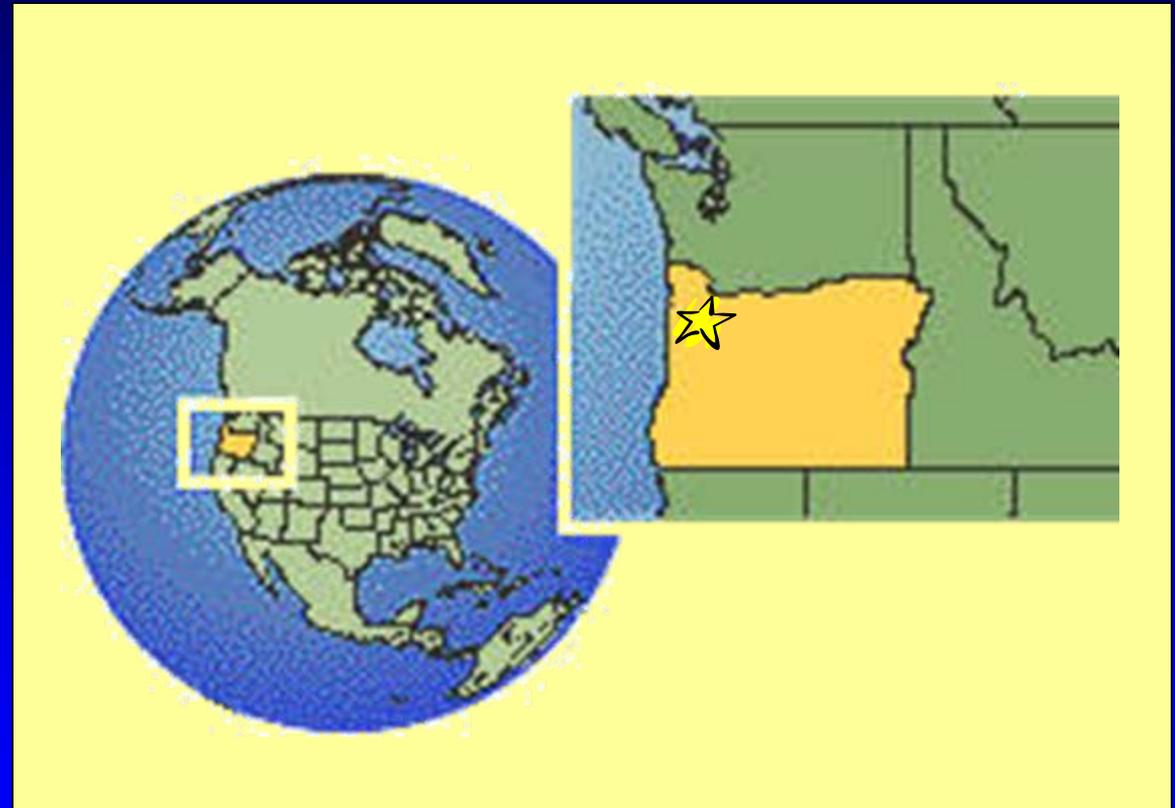
Attached to Components

Descriptive soil information
or attributes, typically
provided by TEUI



Where's Terra?

The Terra Team is located in Sandy, Oregon, co-located at the Mt. Hood National Forest HQ.



NRIS Terra



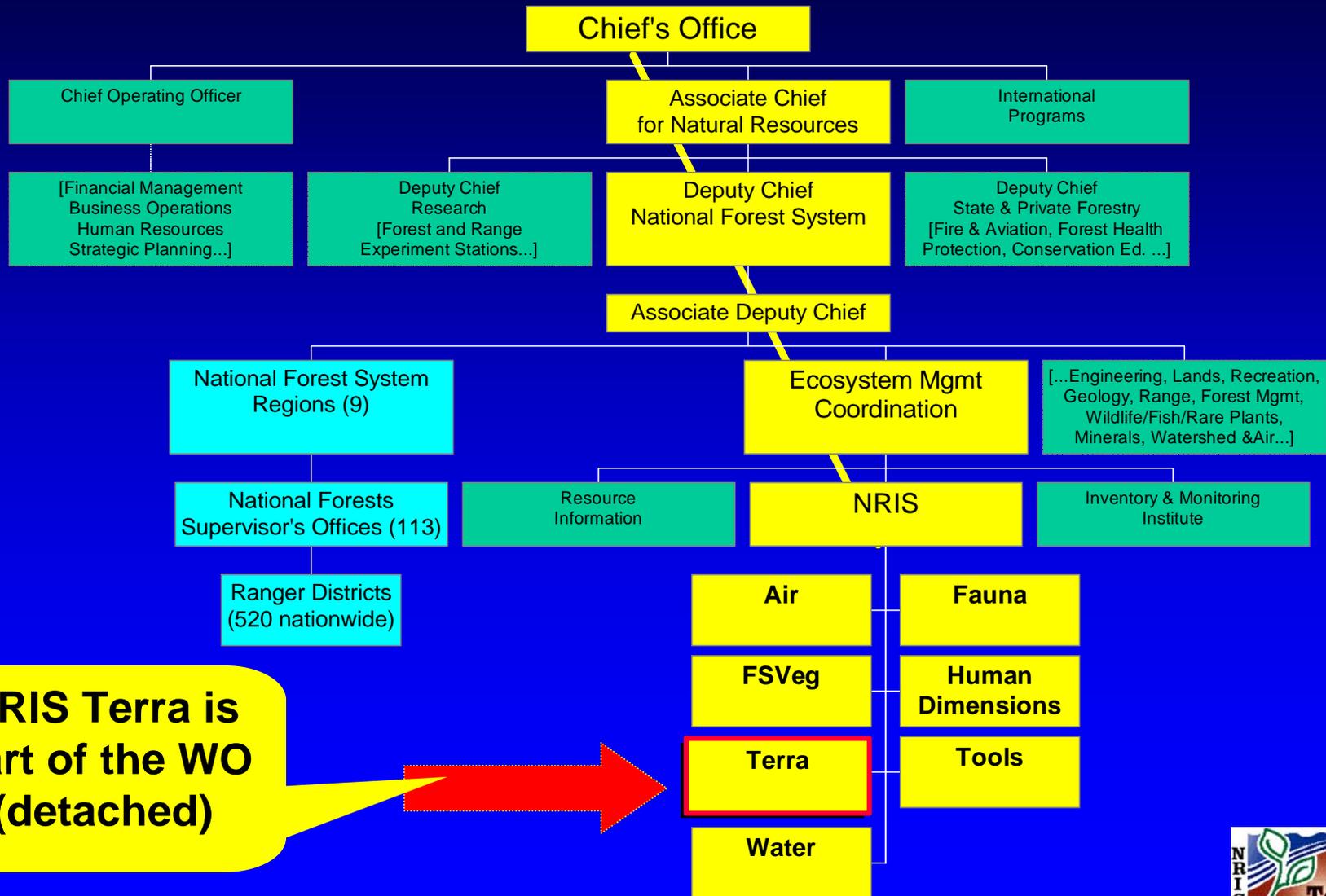
For More
Information

NRIS Terra Website: <http://fsweb.sandy.wo.fs.fed.us/>
(Includes all presentations, handouts, templates and user guides)

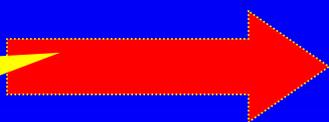
NRIS HelpDesk Phone Number:
(503) 668-1798

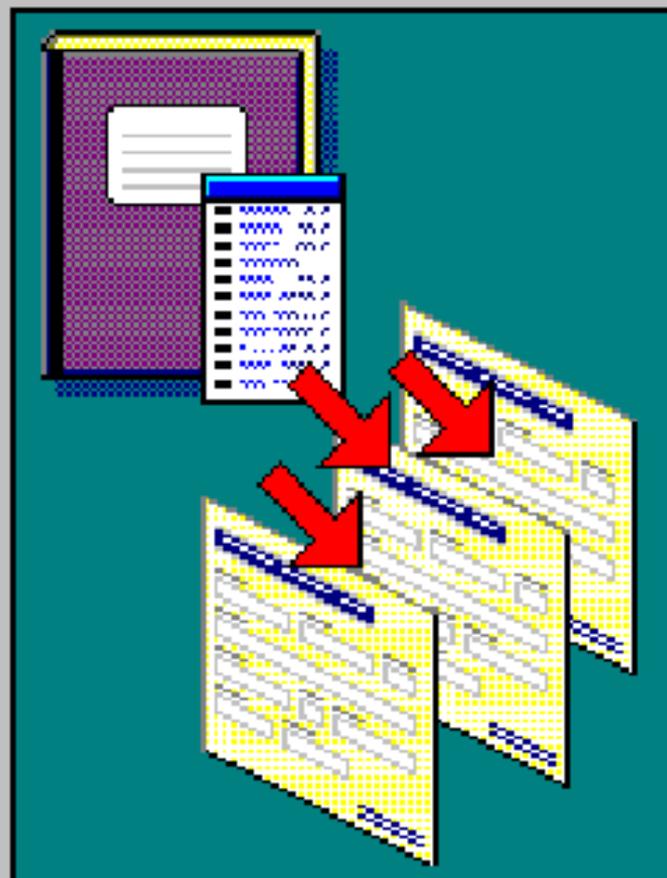
NRIS HelpDesk Website:
<http://terra-159.sandy.wo.fs.fed.us/helpdesk/user.html>

NRIS Organization



NRIS Terra is part of the WO (detached)





Site/Polygon Wizard

This Wizard will help you work with Site IDs and their related range data.

At any time during the process, if you wish to return to a previous step, simply click on Previous.

Click on Cancel at any time if you wish to return back to the main menu.

Please select one of the following:

View/Edit

View or edit existing Site IDs. Make sure that some of the key data items (i.e. project, sample id) are available to search by.

Create

Creates a new Site ID. This step requires an existing "Project Metadata" (i.e. project).

Cancel

Click on Next to continue

Next>

Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B	B0607B	09/24/1992

Soil Pedon

Pedon Label	B0607B	TUD Modal	N	OSD Modal	N		
MUD Modal	Y	Box Sample	Y	Lab Sample	N	Complete Pedon	Y

Properties

Qualities

Extra-Structural Cracks

User-Defined

Wind Group		Wind Index		Frost Action	
Subsidence Initial		Subsidence Total		Subside Depth UOM	Inches
Hydrologic Group		Runoff		T Factor	

Soil 2500

Control Sections

Layer/Horizon

Pedon Features

AWC

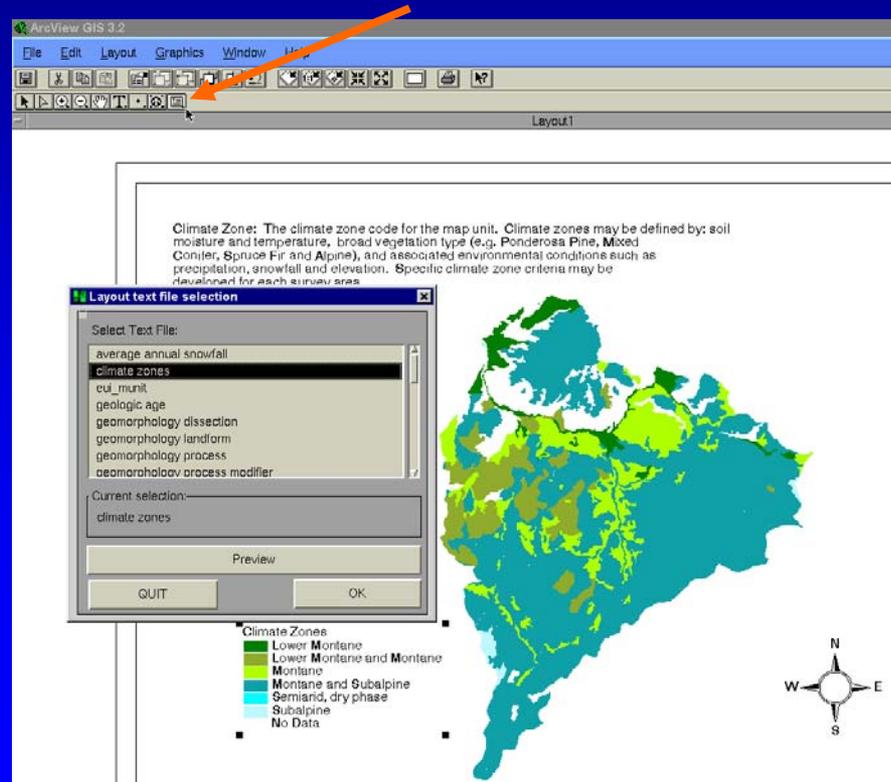
Chem/Phys Properties

Terra Extension

Theme Description Button



Button appears in “Layout” view and provides a pre-defined description of Terra themes.



Range Line Intercept

- This protocol is commonly used to provide quantitative, replicated measurements of plant species cover for monitoring purposes.
- It is best suited to record and track shrub species.

Range Ocular Macroplot

- A common method for sampling plant composition
- To record ocular (visual) estimates of:
 - ✓ Plant species canopy cover
 - ✓ Height
 - ✓ Shrub form class
 - ✓ Phenology

Range Cover Frequency

- For gathering quantitative measurements of cover and frequency for both ground cover and plants (generally herbs and grasses)
- Systematically placing a 20 x 50 centimeter quadrat frame along a tape on permanently located transects, to measure:
 - ✓ Plant canopy cover
 - ✓ Ground cover
 - ✓ Frequency

Sites\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	B0607B		09/24/1992

Examiner	Location	Setting	Classification	Ground Cover	Map Unit	Aerial Photo	Ground Photo	Comments
----------	----------	---------	----------------	--------------	----------	--------------	--------------	----------

Cover Type *	% Cover
COBB	
BAVE	
BARE	
GRAV	
LITT	
...	
...	
...	

Soil Erosion

Disturbance Agent *	Description	Severity Rating *	Description
...		...	

Bedrock/Surficial



Terra Extension

Calculate Area Button

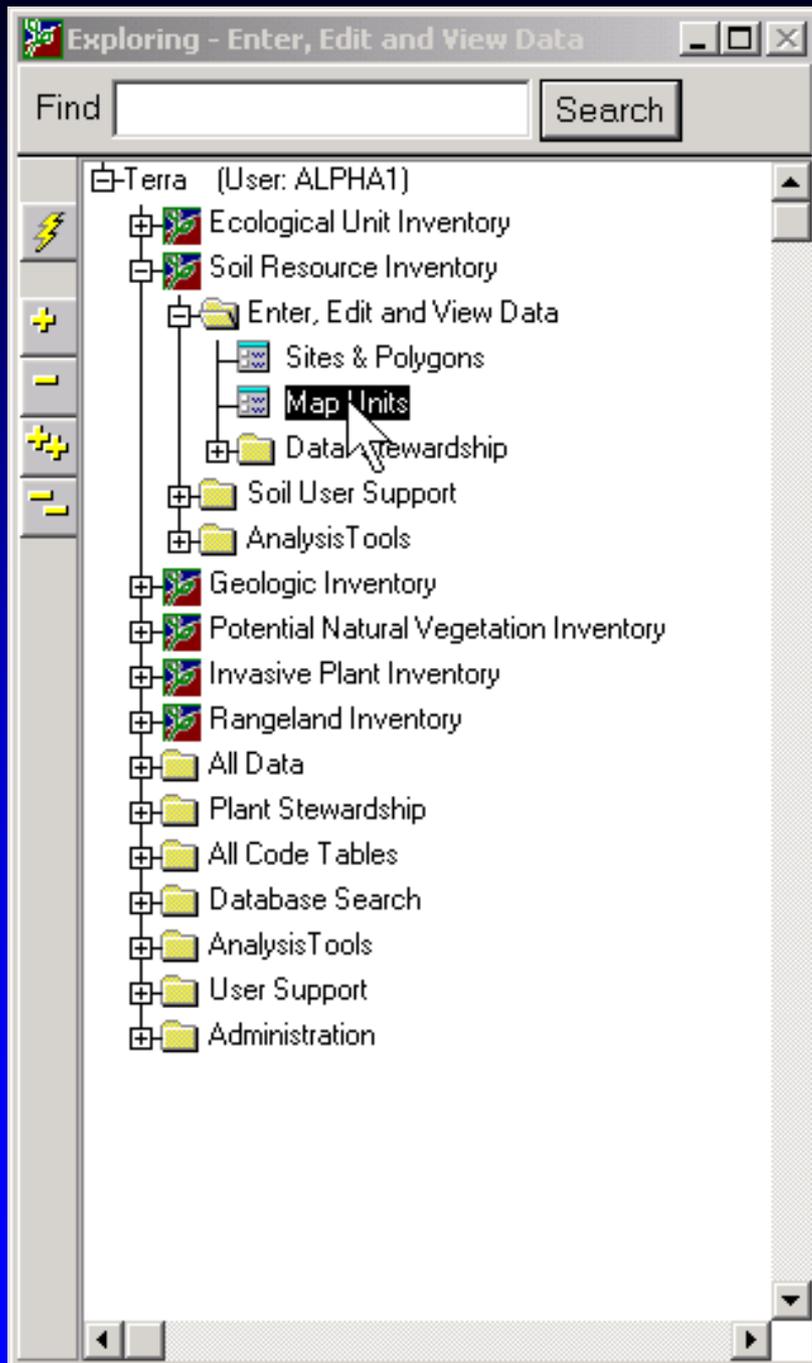


Quickly creates a table based on the Active Themes Legend.

CLASS	ACREAGE
Lower Montane	1976.44
Lower Montane and Montane	4502.66
Montane	6370.59
Montane and Subalpine	31514.69
Semiarid, dry phase	2.08
Subalpine	342.03
TOTAL	44708.48

Works with any polygon theme in the current project.





Map Unit

Project * ▾

Protocol * ▾

Methodology * ▾

Map Type * ▾ General Location

Map Level * ▾ Map Subtype ▾

Delineation Source ▾ Agency ▾

Map Unit Identifiers

Map Unit Symbol *

Map Unit Name

Map Unit Kind ▾ Map Unit Status ▾ Map Unit Match ▾

Area Area UOM ▾ Area Method ▾

Row Access * ▾

- Settings
- Climate
- Interpretations
- Sites
- Examiners
- Components
- Concept

Classifications

Dominance *	Class Code	Class Level	Class Set	Class Short Name	Class Name	Class Phase
1		▾				
		⋮				

Map Unit Other Label (Association)

Map Unit Symbol *	Map Level	Map Unit Name	Map Unit Status	Date	New Map Unit Symbol
<input type="text"/> ▾					
<input type="text"/> ⋮					



Map Unit

Project *

Protocol *

Methodology *

Map Type * General Location

Map Level * Map Subtype

Delineation Source Agency

Map Unit Components

Map Unit

Type Level Project Symbol

Name

Map Unit Components

Comp Label *	Component		Geom Gen	Component Area	Area UOM	Dominant Comp	Geographic Applicability
	Actual Pct	Relative Pct					
<input type="text" value="1 ↓"/>	<input type="text" value="50"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MA ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="2 ↓"/>	<input type="text" value="25"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MA ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="3 ↓"/>	<input type="text" value="3"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MI ↓"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="4 ↓"/>	<input type="text" value="3"/>	<input type="text" value=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="" ↓"=""/>	<input type="text" value="MI ↓"/>	<input type="text" value="" ↓"=""/>

- Hydro
- Setting
- Ground Cover
- Interpretation
- Climate
- Veg Summary
- Site
- Concept

Component Composition

Dominance *	Class Code	Class Level	Class Set	Class Short Name	Class Name	Class Phase
<input type="text" value="1"/>	<input type="text" value="048AY253CO ↓"/>	<input type="text" value="PVES"/>	<input type="text" value="NRCS ECOS"/>	<input type="text" value="WET SUBALPINE"/>	<input type="text" value="WET SUBALPINE"/>	<input type="text" value="" ↓"=""/>
<input type="text" value="1"/>	<input type="text" value="" ↓"=""/>	<input type="text" value="SEPH"/>	<input type="text" value="GRAND ME"/>	<input type="text" value="Aley, Warm"/>	<input type="text" value="Loamy-skeletal, mixed Typic Cr"/>	<input type="text" value="WARM"/>



Map Unit Component

Type Level Project Symbol

Comp Label

Name

Interpretations

Interpretation Type *

Level Of Approval

Category

Ref. Item Code

Rating Description

Interpretation Value

Local Criteria

Restrict 1

Restrict 2

Restrict 3

Description

Description

Description



Map Unit Component

Type Level Project Symbol

Comp Label

Name

Sample Unit/Map Component Link

Site ID *	Project Name	Sample Date
<input type="text"/>		



Site\Polygon\Sample

Project	Site ID	Sample ID	Start Date
B-T EUI	A0501B	A0501B	09/23/1992

Soil Pedon

Pedon Label	a0123	TUD Modal	N	OSD Modal	N
MUD Modal	N	Box Sample	N	Lab Sample	N
		Complete Pedon	N		

Properties | Qualities | Extra-Structural Cracks | User-Defined

Pedon Depth Class	D	Depth Observed	50.00	Depth Obs. UOM	Inches
Depth Continues	N	Excavation Difficulty		Excavation Method	PT
Restriction Kind		Restriction Hardness		Restriction Depth	
Rest. Depth UOM		Moist Status		Drainage Class	WD
Permeability Class	M	Permeability Class Contrasting		Salinity Class	
Infiltration Rate		Infiltra. Rate UOM		Capability Subclass	
Stone Boulder Class		Capability Class			

Soil 2500 | Control Sections | Layer/Horizon | Pedon Features | AWC | Chem/Phys Properties



Range Wizard

Select site for Range or Invasive Plants data entry

[Show TOC](#) | [^Top](#) | [<Prev](#) | [Next>](#) | [PDF Version](#)

Type of Form: Wizard

Business Area: Rangeland Inventory, Invasive Plants Inventory

Cras amet qui nunquam amavit quique amavit, cras amet beneficium accipere libertatem est vendere. Non teneas aurum totum quod splendet ut aurum stultorum calami carbones moenia chartae. Radix omnium malorum est cupiditas altissima quaeque flumina minimo sono labi.

Link Box

Panel Links:

[Select Operation Panel](#)

[Find Site Panel](#)

[Create Site Panel](#)

[Copy Information Panel](#)

Data Entry Guide Links:

[Using Invasive Plants Protocol](#)

[Using Rangeland Protocol](#)

Video Links:

See Also:

[Interacting with Wizards](#)

Select Operation Panel

View/Edit Cras amet qui nunquam amavit quique amavit, cras amet beneficium accipere libertatem est vendere. Radix omnium malorum est cupiditas altissima quaeque flumina minimo sono labi.

Create Cras amet qui nunquam amavit quique amavit, cras amet beneficium accipere libertatem est vendere.

Display on Startup Cras amet qui nunquam amavit quique amavit, cras amet beneficium accipere libertatem est vendere.

Cancel Cras amet qui nunquam amavit quique amavit, cras amet beneficium accipere libertatem est vendere. Radix omnium malorum est cupiditas altissima quaeque flumina minimo sono labi.

Finish Cras amet qui nunquam amavit quique amavit, cras amet



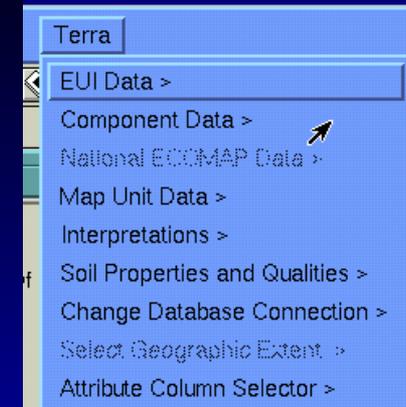
NRIS Terra – An Overview



Who are the
Terra Users?



Displays



Map Unit Data – TEUI and Soils

- Climate, Settings, Geology, Ecological Unit Hierarchy

Map Component Data (For Components)

- Soil, PNV, Geology, Geomorphology

Interpretations (For Components)

- Ratings and restrictive features

Soil Properties and Qualities (For Components)

- Drainage class, runoff potential, T factor, etc.