

# Soil Resource Inventory Tool Box (SRITB)

National Geospatial Development Center  
May 2009

# What is SRITB?

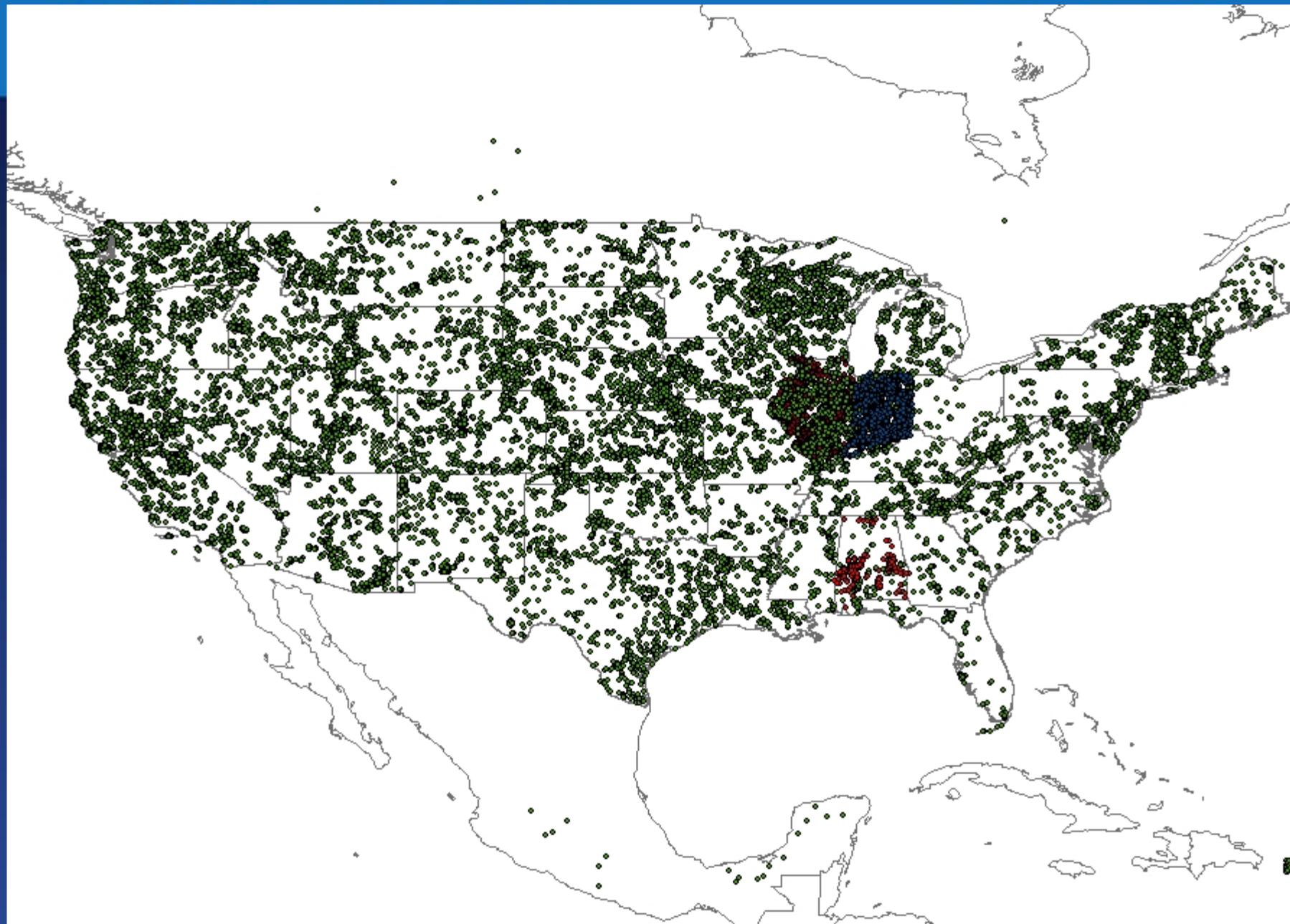
- Soil Resource Inventory Toolbox
- Initiative by Soil Survey Division to provide automated field tools for soil scientists

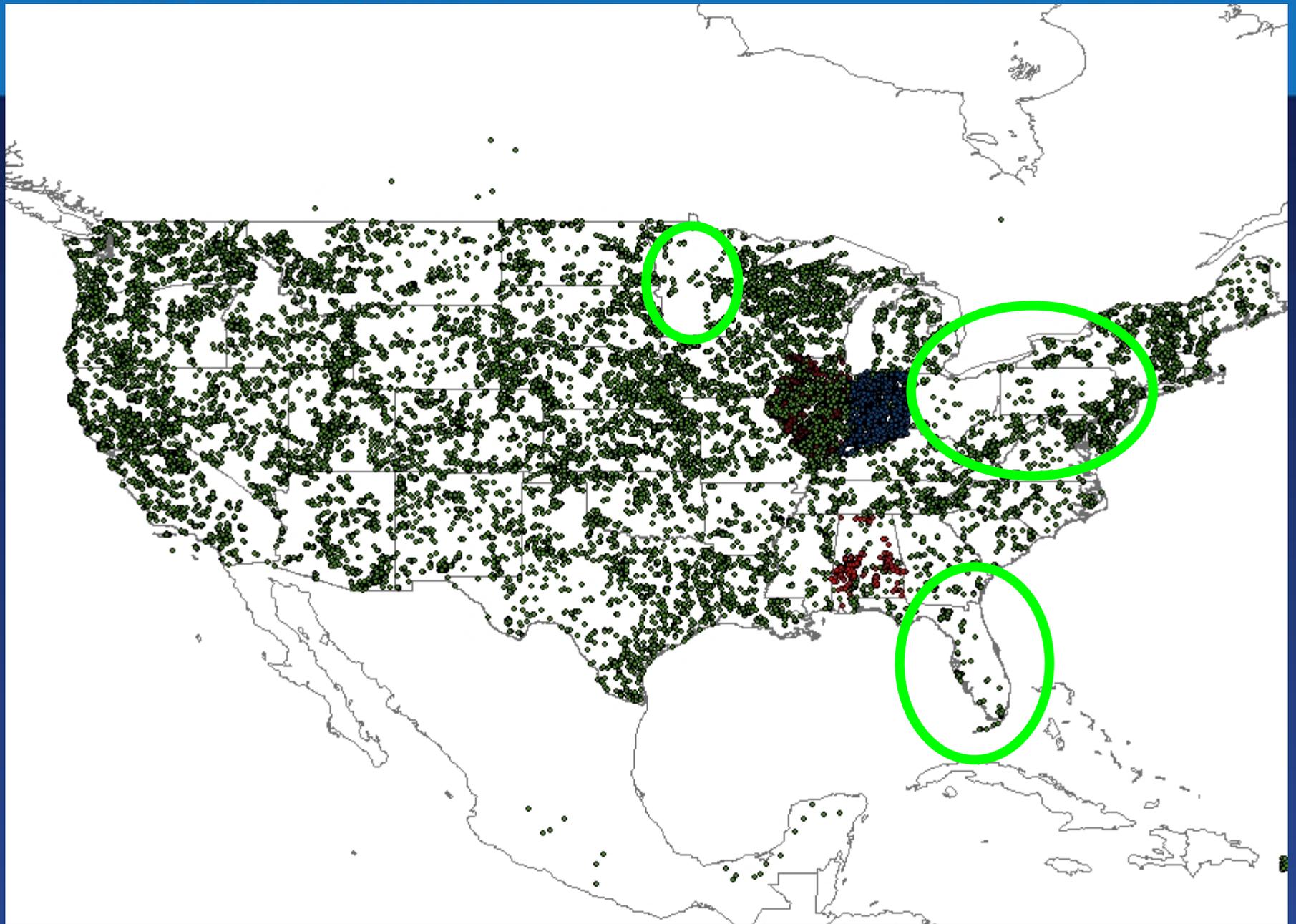
# NGDC developed SRITB components:

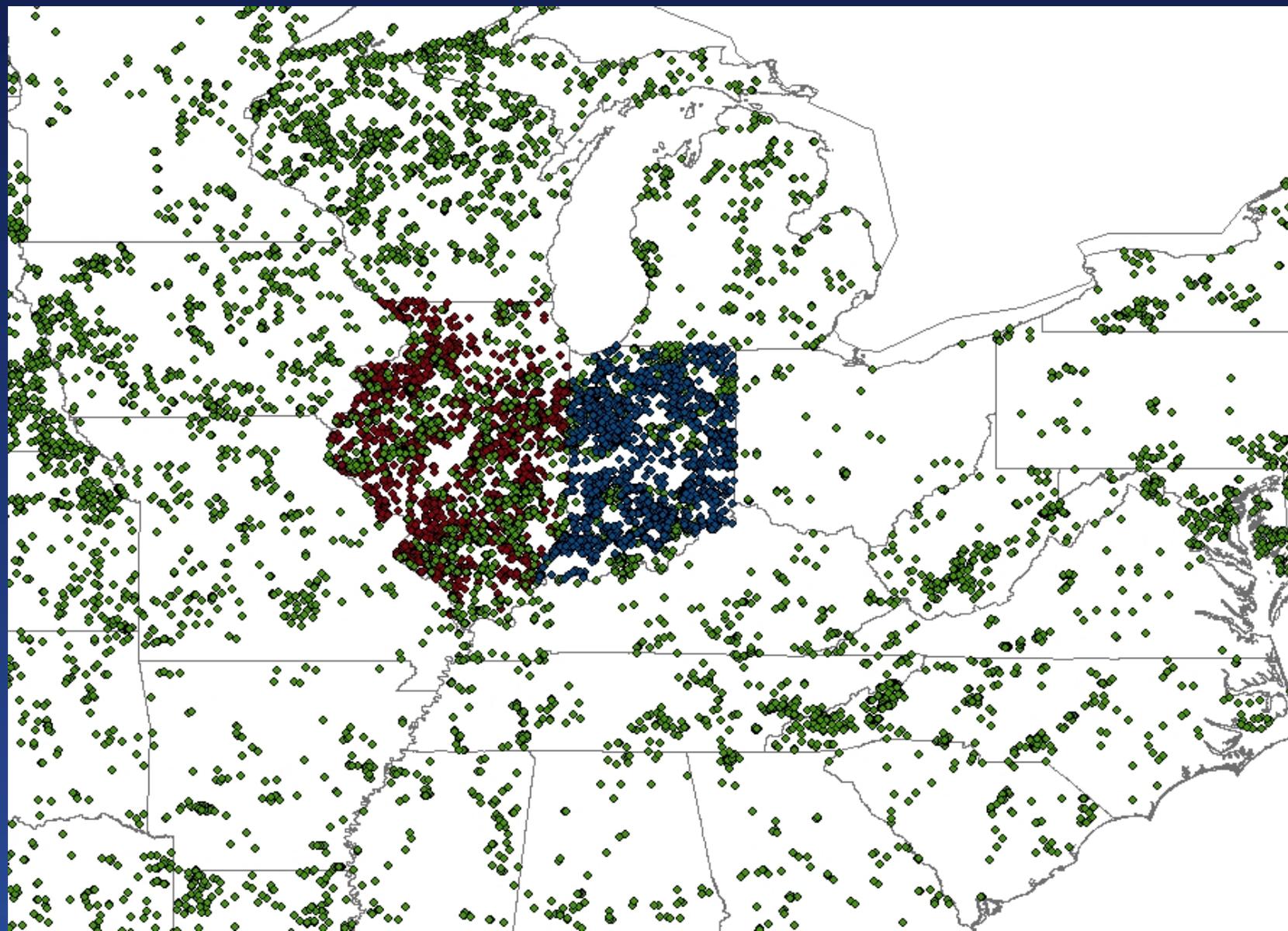
- Microsoft Access Applications
  - Pedon PC
  - Analysis PC
  - Lab Database Entry Program
- One Arc GIS Extension
  - SRITB Digital Editing Toolbar

# Lab Database Entry Program

- Detailed laboratory data for soils are stored in the NRCS Lab Information Management System (LIMS)
- Numerous universities, states, and other entities also collect and store soil data
- Lab Database Entry Program is an attempt to centralize this external data into our system



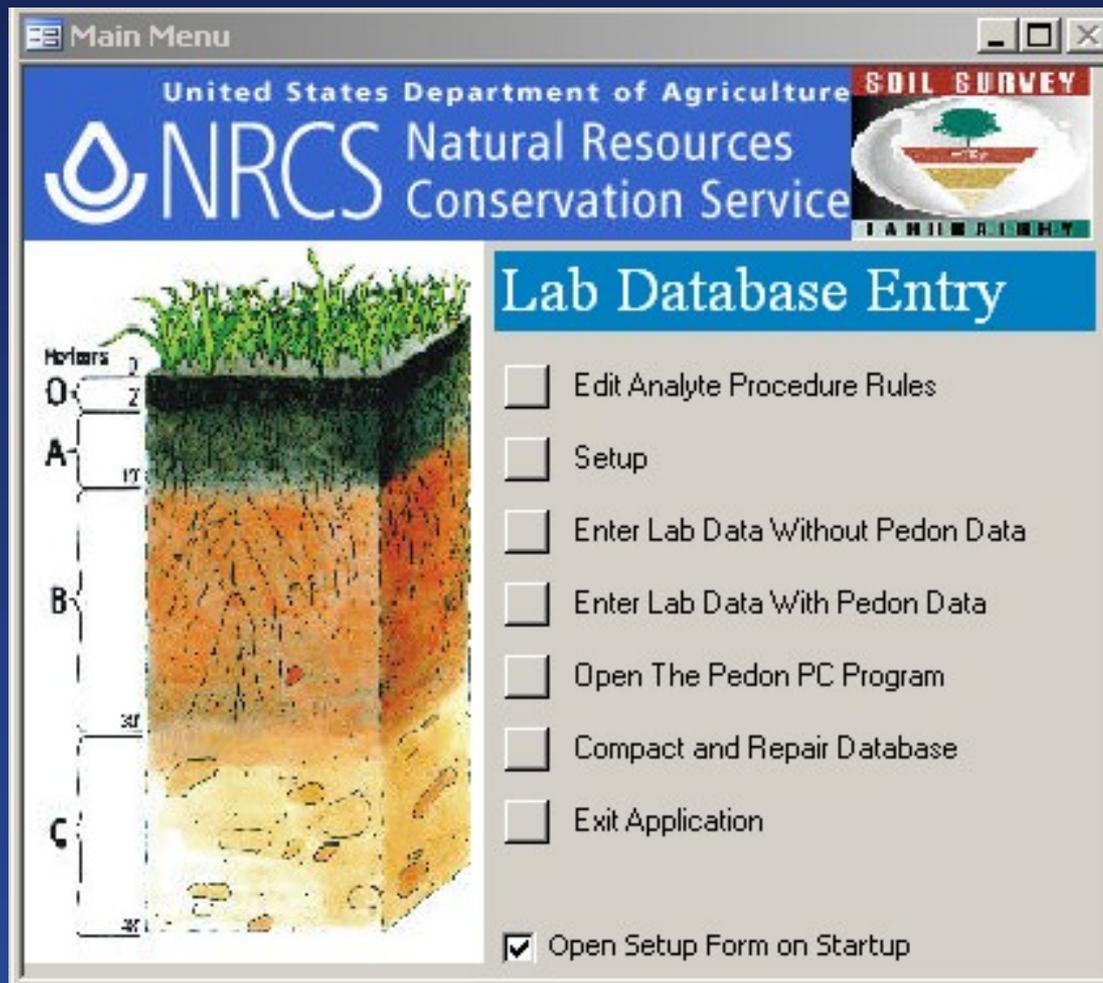




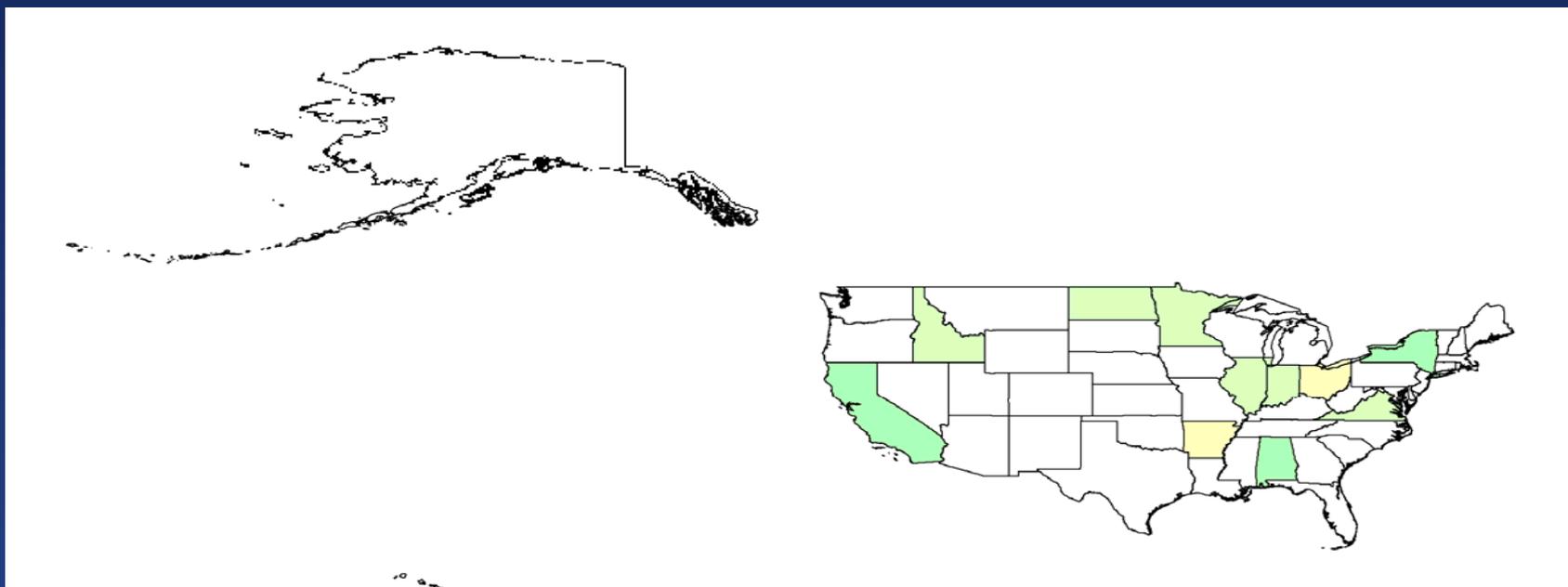
# Lab Status

- The lab applicaton collects metadata
- Universities use Pedon PC to get the descriptions in NASIS.

# Lab Database Entry Main Menu



# University Laboratory Data Project



# Pedon PC

- Field soil scientists were major players in the appearance and functionality
- Montana Migrator was the basis for the application

# Pedon PC Tablet Forms

Pedon Tablet Form
\_ □ ×

**Search by User Site ID:** 
**PEDON DESCRIPTION**
[Customize Choice Lists](#)
[Metric/English Calculator](#)

Check to Search by Pedon
[Copy a Pedon](#)
[Calculations](#)

Site (Part 1)
Site (Part 2)
Site (Part 3)
Pedon
Horizon (Part 1)
Horizon (Part 2)
Reports

Note: Double-click a value in the Pedon table Transect ID, Soil Name As Sampled or Subgroup columns for special features. Selecting a pedon record will affect the horizon tabs because pedon is the parent table. If no pedon record is shown, the wrong site observation record may be selected on the Site (Part 1) tab or you may need to add a pedon record.

**Pedon:**

Rec ID	UPEDID - User Pedon ID	SoilName - Soil Name	CorrSoil	PSCS Top	PSCS Bot -	PedOr - Pedon	TempReg - Ter
▶	Sanpedro	Sanpedro		5	28		

**Pedon Text:**

Seq	Kind	Cat - Category	SubCat -	Text
▶				

To add horizon data please use the Horizon (Part 1) and Horizon (Part 2) tabs.

**Pedon Horizon:** (Read Only)

HorDes - H	UpDep	LoD	Seq	Horizc
A	0	5	0	
▶ Bt	5	18	0	
Btk	18	28	0	
Bk	28	43	0	
R	43	100	0	

**Pedon Diagnostic Features:**

Kind	TDeg	BDeg	ThkL	Thi
▶ mollic epipedon	0	43	0	
argillic horizon	5	28	0	
lithic contact	43	0	0	
calcic horizon	7	43	0	
*				

**Pedon Taxonomic Moisture Class:**

Seq	Moist - Moistur
▶	

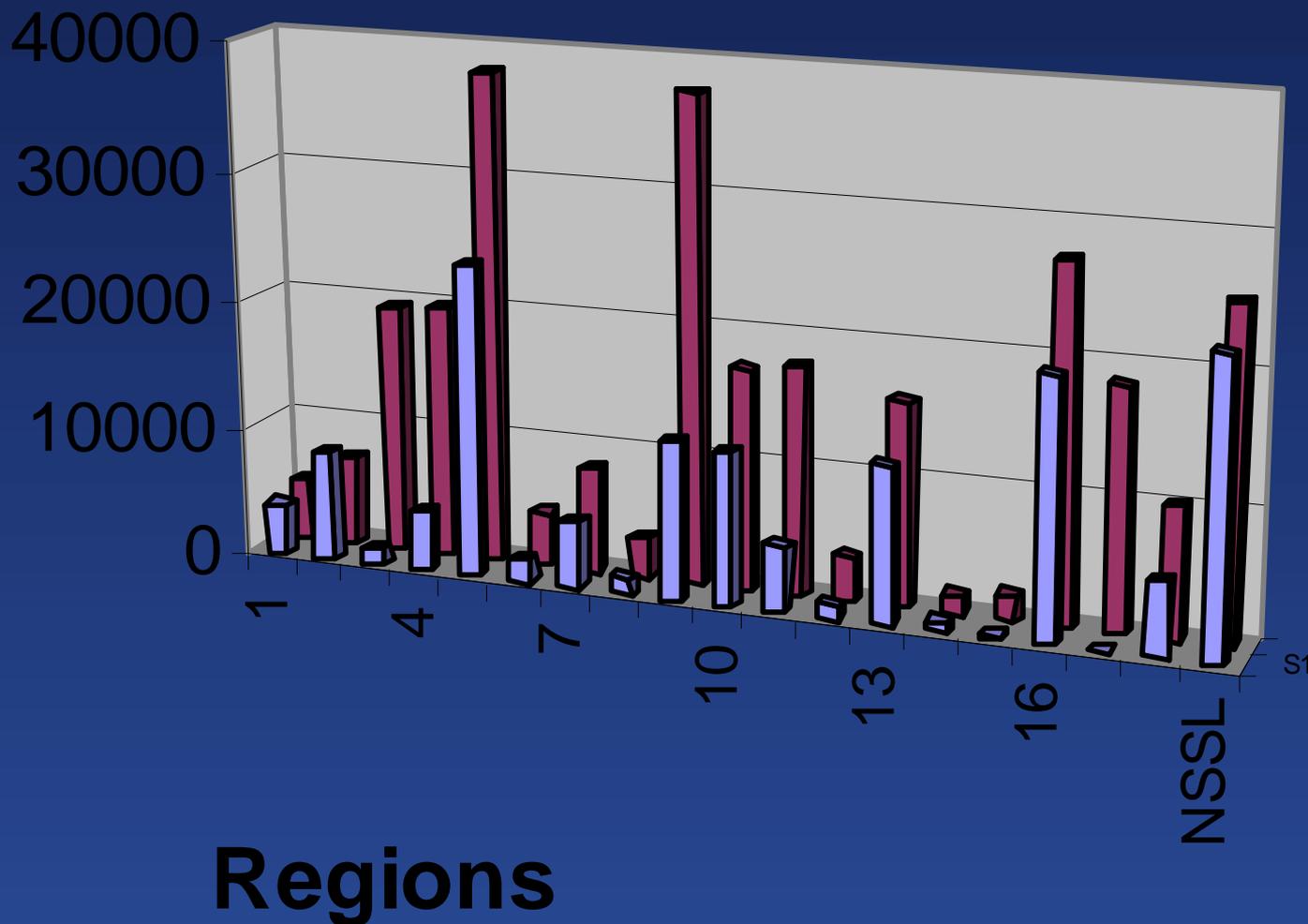
**Pedon Taxonomic Mineralogy:**

Seq	Mineralogy
▶ 0	mixed
*	

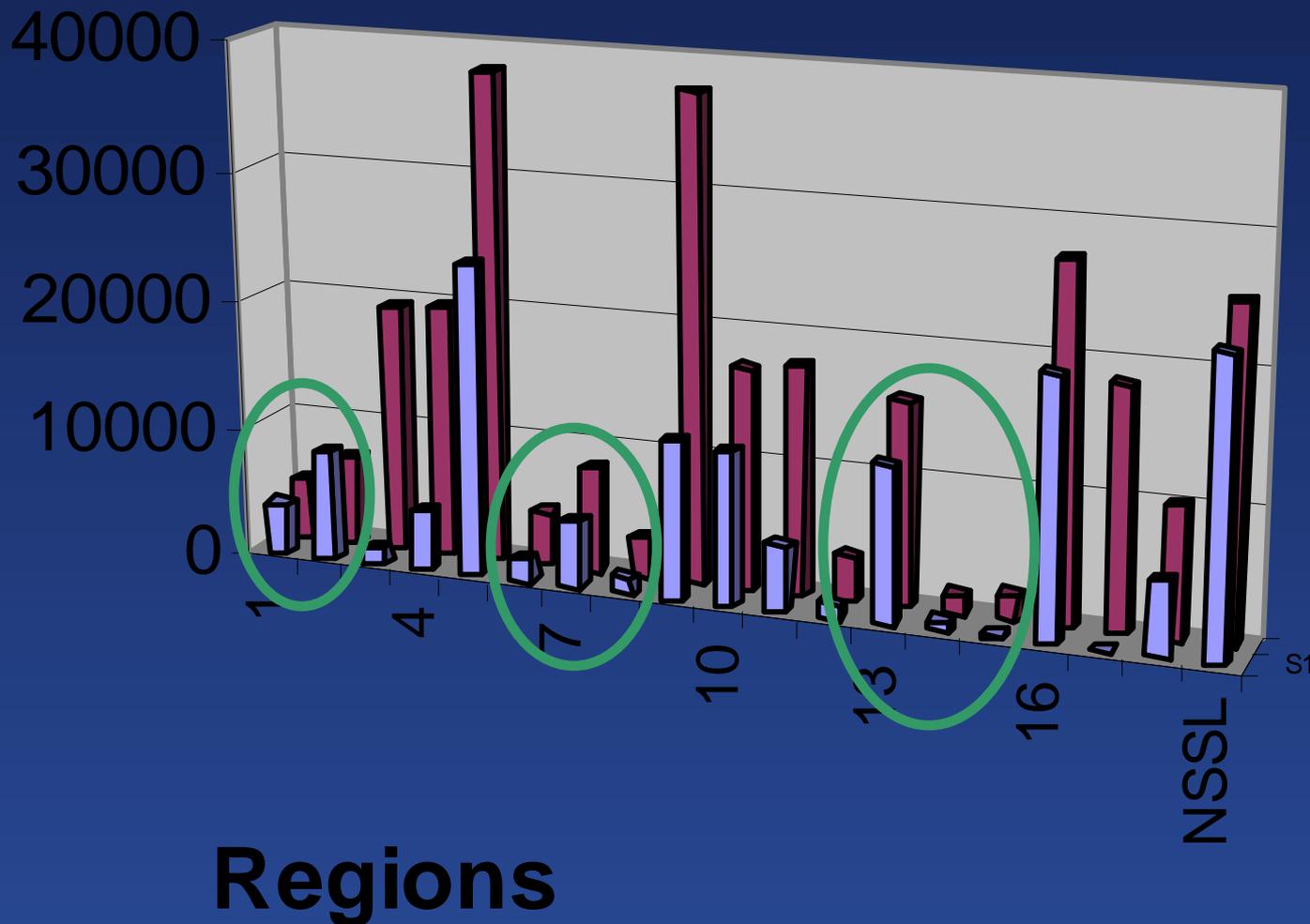
# Pedon PC

- Forms are designed for use in Microsoft Access
- Point data in NASIS:
  - 2005 approx 100,000 points
  - 2007 approx 240,000 points
- Difference about 140,000 points

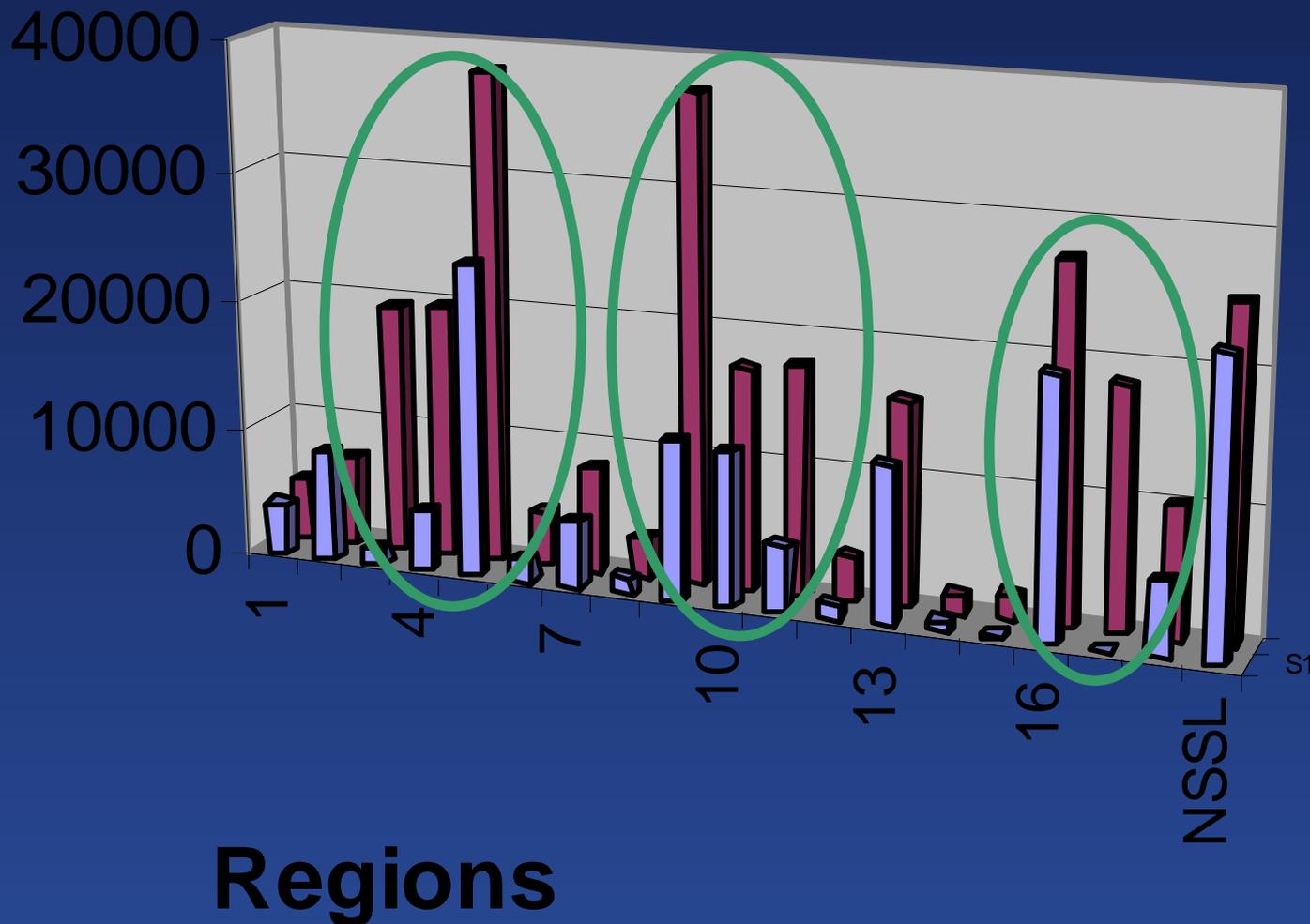
# Points by Region



# Points by Region



# Points by Region





658 1102

85 624

613 209

167 8

-304 168

190 151

8 1261

-2178 147

5311 1

648

# April 2009 #'s of Points added to NASIS in One Month

2917	160
1119	105
775	102
428	80
420	46
406	15
373	0
206	-62
204	
199	

# Pedons in NASIS April 2009

37604 10138

36581 8187

27213 6787

25216 4453

19568 4429

18970 3500

18528 2823

17595 1956

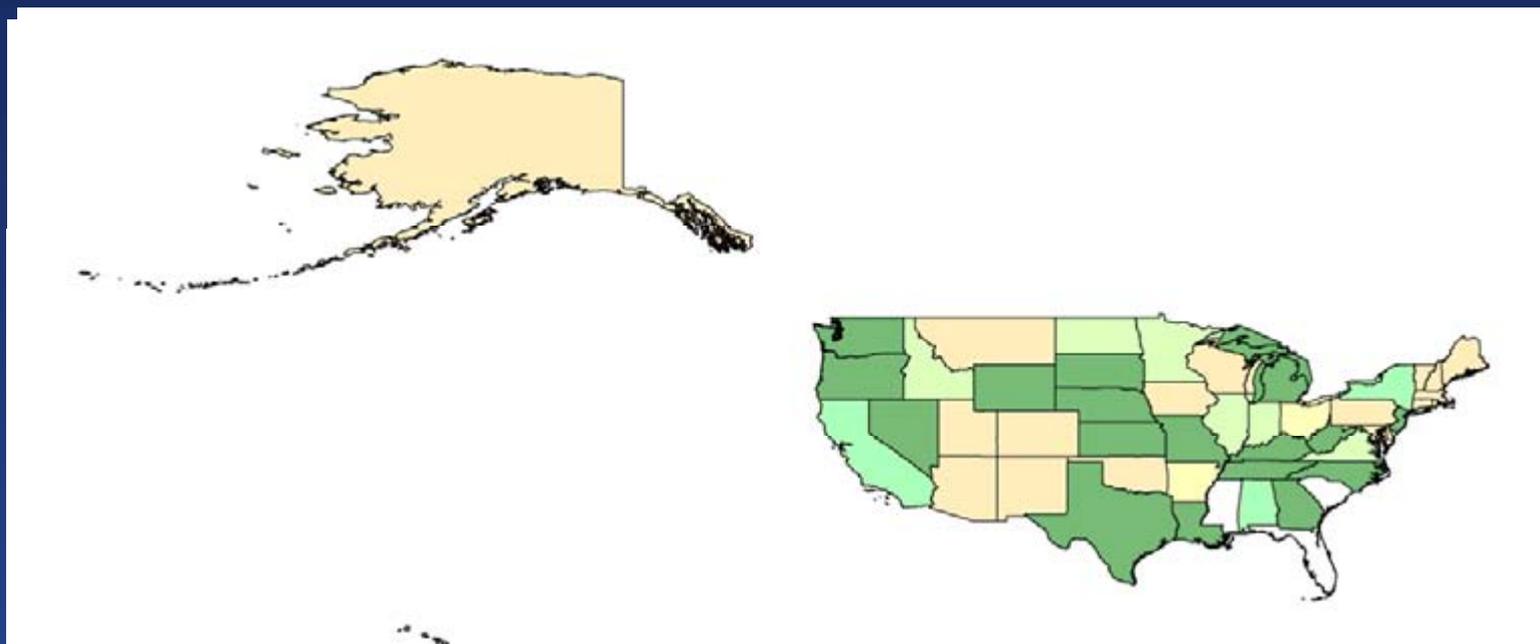
16790 1425

15799

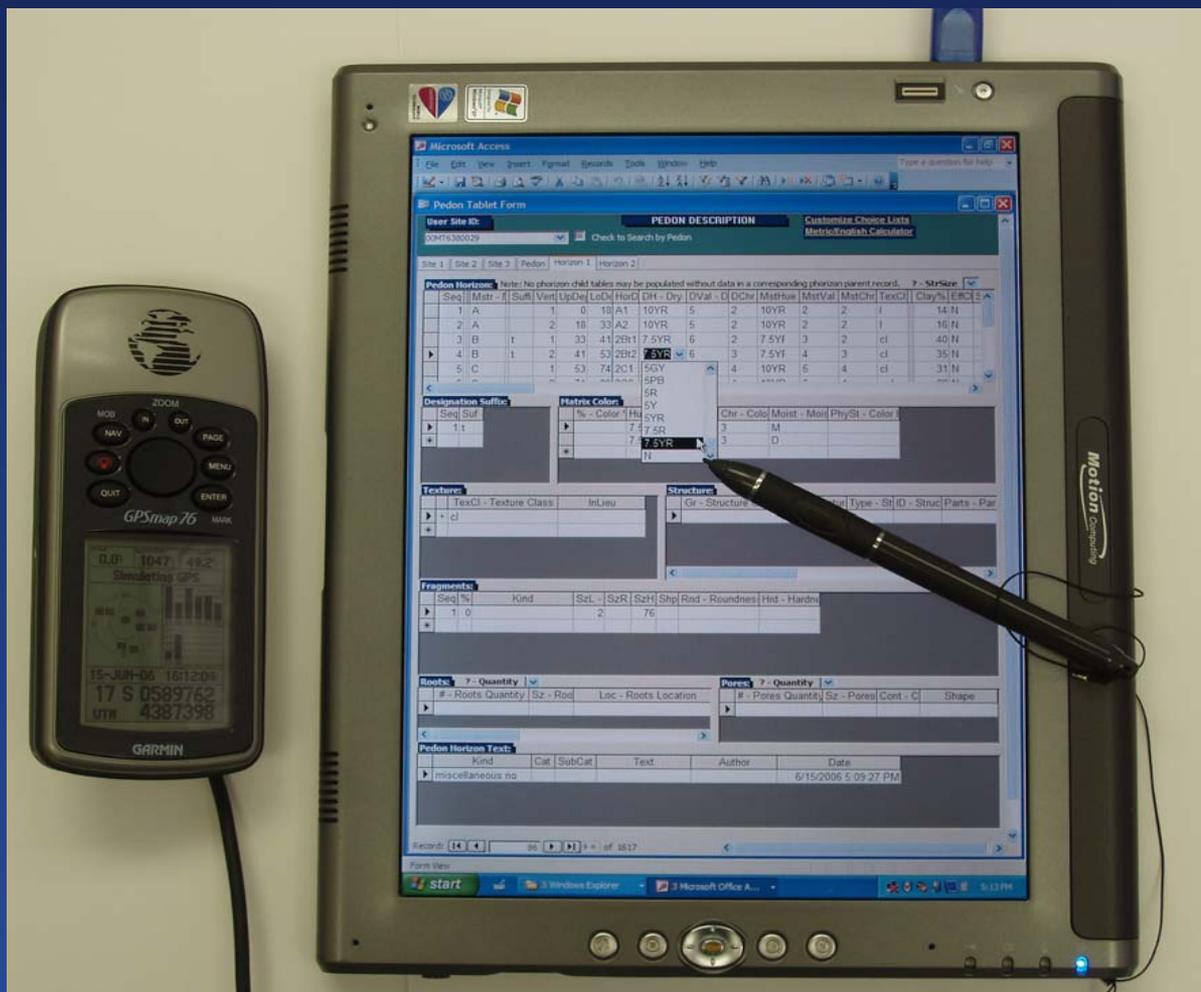
# SRITB

- Communication
- Education

# SRITB Awareness and Use



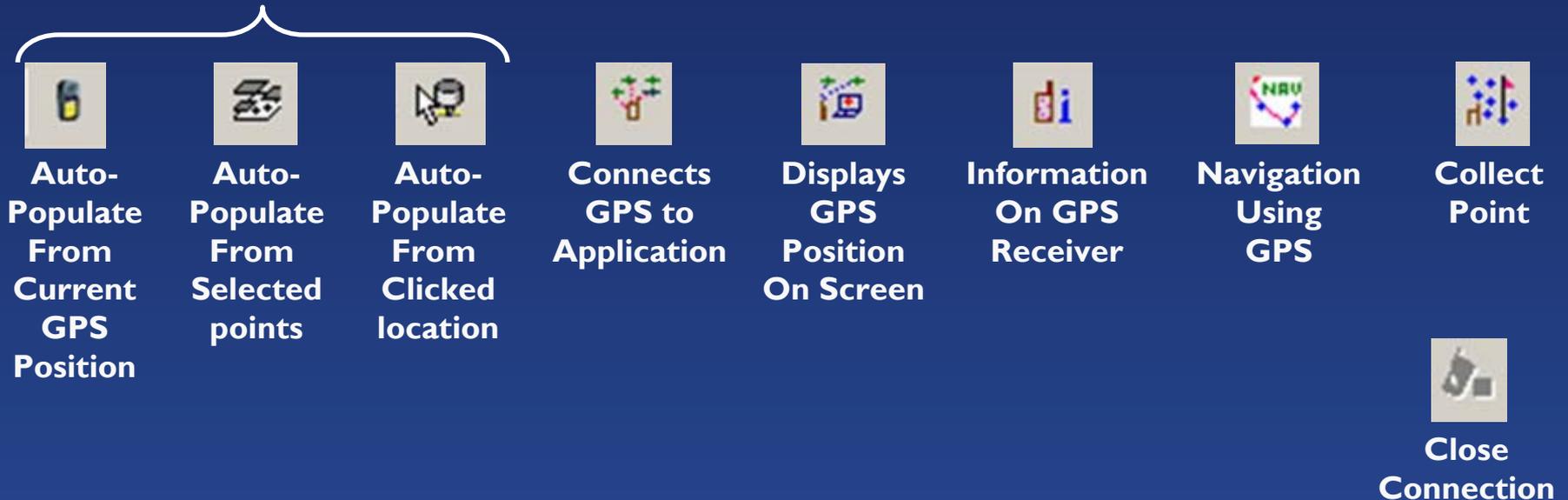
# Auto-pop interaction with Pedon PC and a GPS unit



# GPS Toolbar in ArcMap



## Pedon PC Applications



# Auto-population

The screenshot displays two software windows: Microsoft Access and ArcMap. The Microsoft Access window shows a 'Pedon Tablet Form' with various data entry fields. The 'Coordinates' section is circled in green, showing Latitude: 33 02 35.8 north, Longitude: 101 04 25.3 west, UTM Easting: 306727.00 meters, UTM Northing: 3676477.00 meters, and UTM Zone: 14. The 'Area and Mapunit Overlap' section is also circled in green, showing a table with columns for Sym, Area Symbol, and Name - Area Type Name. The table contains the following data:

Sym	Area Symbol	Name - Area Type Name
+	Texas	State or Territory
+	Garza	County or Parish
+	Central Rolling Re	MLRA
+	Interior Plains	Physiographic Division

The ArcMap window shows a map titled 'Pedon.mxd' with a colorful legend and a taskbar at the bottom. The taskbar includes the Start button, a folder icon for 'C:\Pedon', and several open applications: 'pedon\_pc : Dat...', 'Main Switchboard', 'Pedon Tablet F...', and 'Pedon.mxd - ...'. The system clock shows 11:08 AM.

# Pedon PC

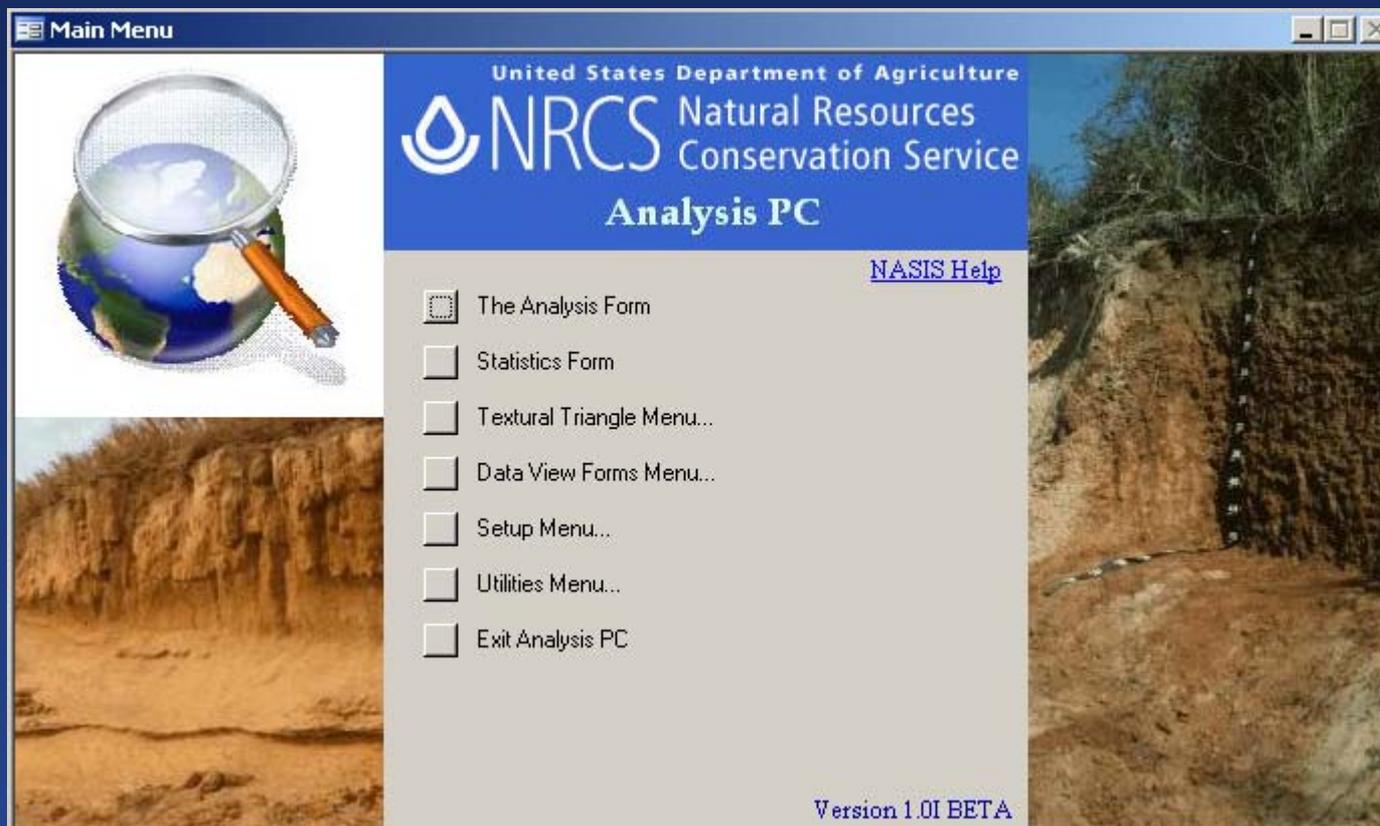
Application used to:

- Collect point data for upload to NASIS (National Soil Information System)
- Run reports for quality control and completeness of descriptions

# Analysis PC

- Analysis PC is an analysis program for point data.
- The Analysis Tools interact with Microsoft Access, ESRI ArcMap and Microsoft Excel.

# Analysis PC Main Menu



# The Analysis Form

**The Analysis Form**

Reset: **The Analysis Form** Help: Exit:

Query:  Run: Description: Enter Data:

Options:  Include recommendations Empty SiteNad83:

	Include?	siteiid	usiteid	peiid	upedonid	soinmassamp	soinmascorr	
▶	<input checked="" type="checkbox"/>	-1	UserSiteID_1	-1	UserPedonID_1	Nonip	Nonip	3
	<input checked="" type="checkbox"/>	-2	UserSiteID_2	-2	UserPedonID_2	Anasazi	Anasazi	3
	<input checked="" type="checkbox"/>	-3	UserSiteID_3	-3	UserPedonID_3	Arches	Arches	3
*	<input type="checkbox"/>							

Record: 1 of 3

**Selected Set Functions**

Check/Uncheck All

Deselect Unchecked:

Deselect Checked:

Load Selected Set:

Save Filtered/Sorted Set:

Save Entire Selected Set:

Send Data to Excel:

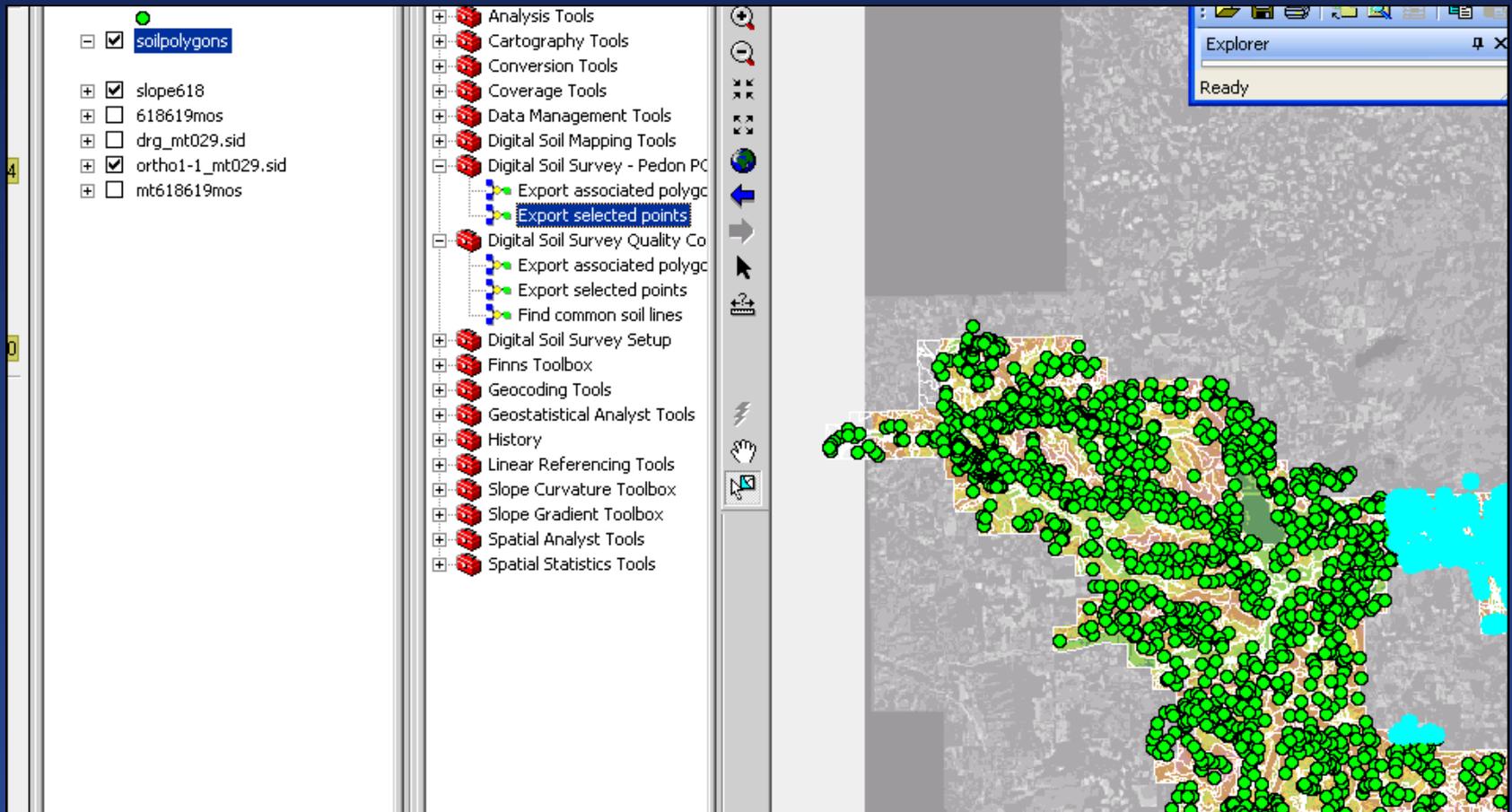
**Spatial Link Functions**

Send Filtered Set To ArcMap:

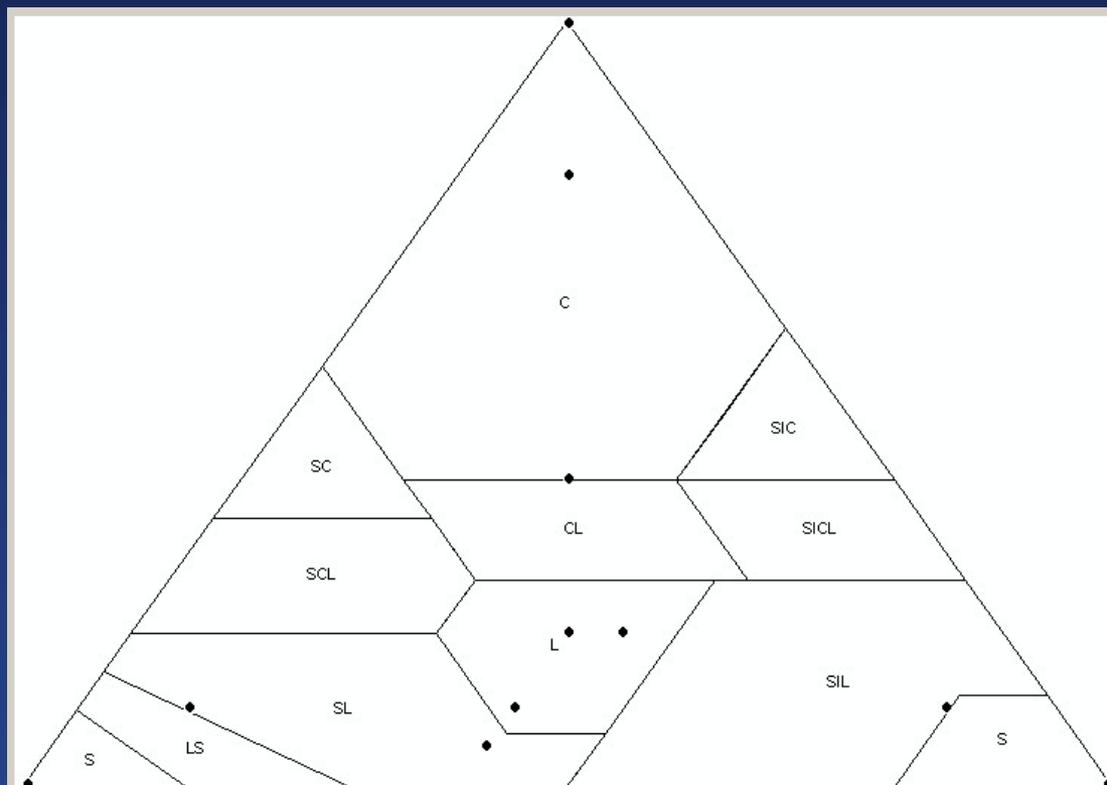
Send Selected Set To ArcMap:

From ArcMap Update Access:

# Interaction with ArcMap



# Textural Triangle Form



C = CLAY; SC = SANDY CLAY; CL = CLAY LOAM; SIC = SILTY CLAY; SCL = SANDY CLAY LOAM;  
L = LOAM; SIL = SILTY CLAY LOAM; SL = SANDY LOAM; SIL = SILT LOAM; S (leftmost) = SAND;  
LS = LOAMY SAND; S (rightmost) = SILT

Plot

Exit

# Editing Toolbar

- Adds a suite of toolbars to ArcMap (loads as an extension)
- Programmed to simplify GIS digitizing procedures and data capture.



# Edit Manager

Editor icons



# Edit Manager

Tolerance Settings icons



Snapping  
environment



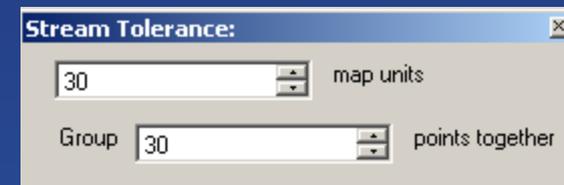
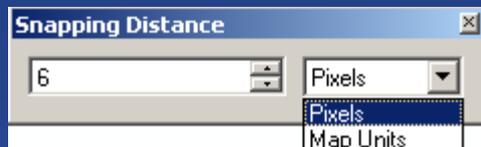
Set Snapping  
Distance



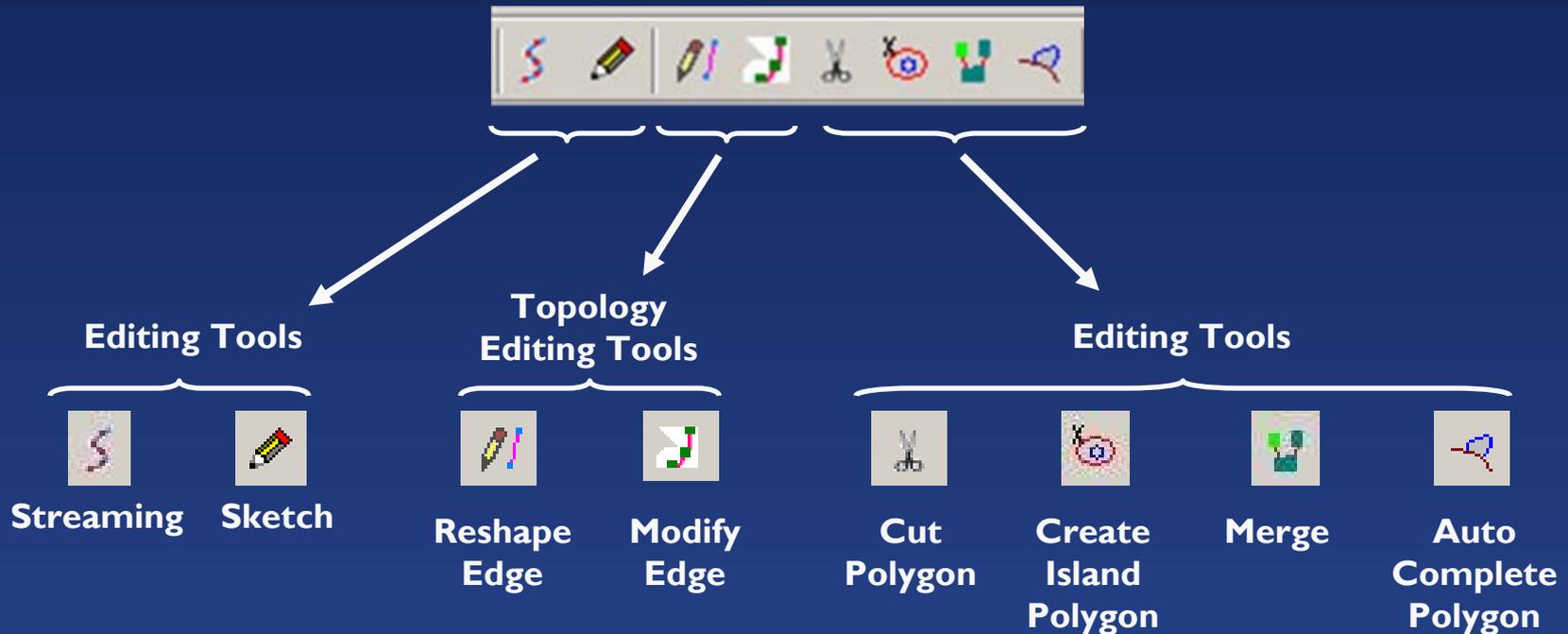
Set Sticky  
Move  
Tolerance



Set Stream  
Tolerance



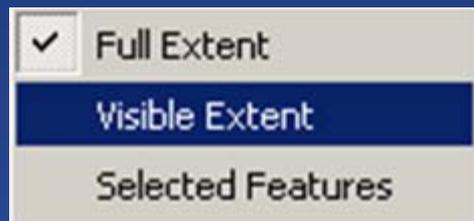
# Edit Toolbar



# QC Toolbar



Extent  
Selection



Find  
And Fix  
Inspector



Finds  
Minimum  
Sized  
Polygons



Finds  
Common  
Lines