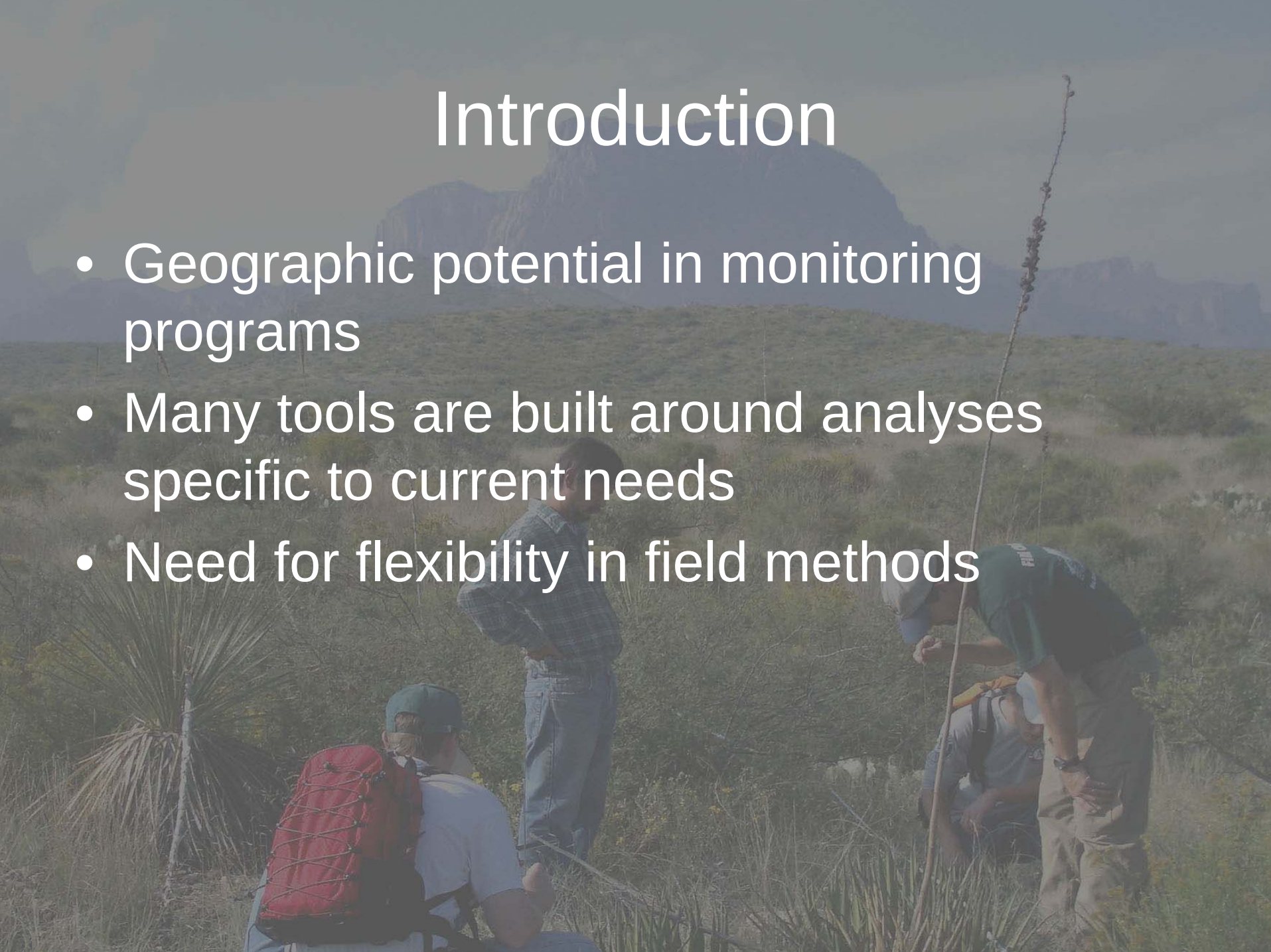
Escaping the Black Box

A Flexible Tool for Spatial Management of Your Sample Population

Introduction

- Geographic potential in monitoring programs
- Many tools are built around analyses specific to current needs
- Need for flexibility in field methods

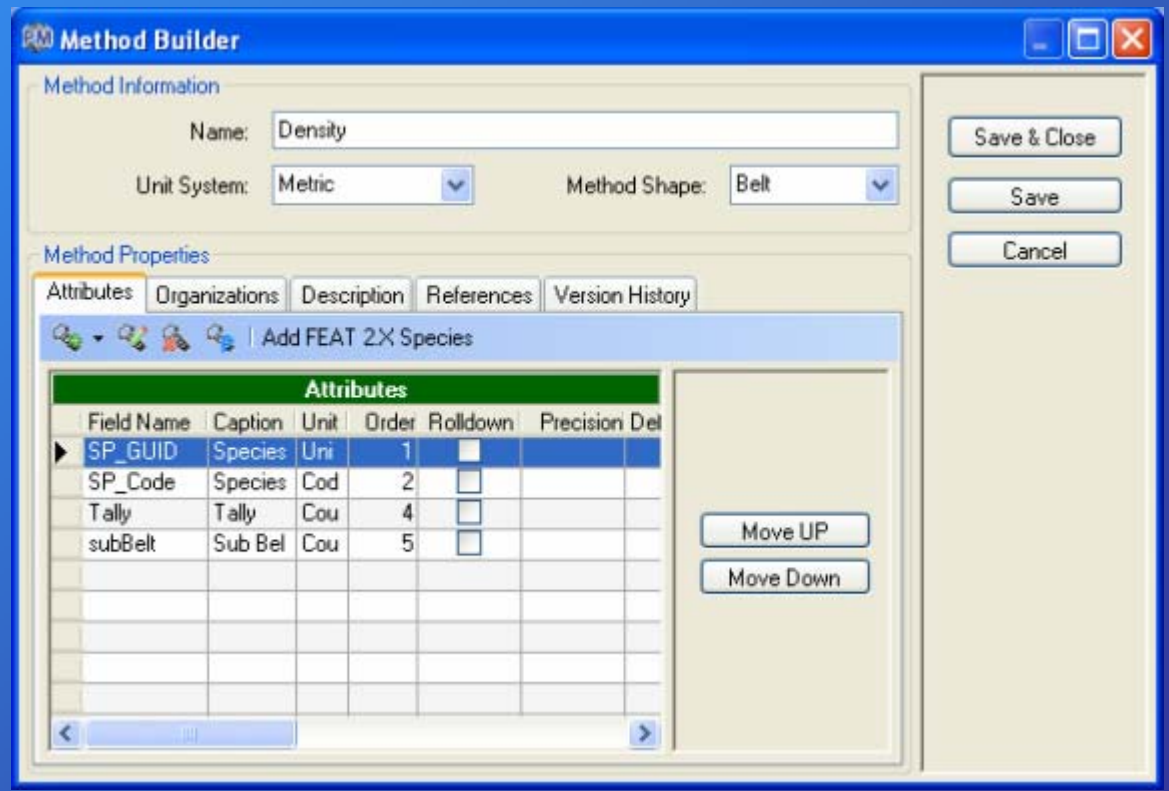


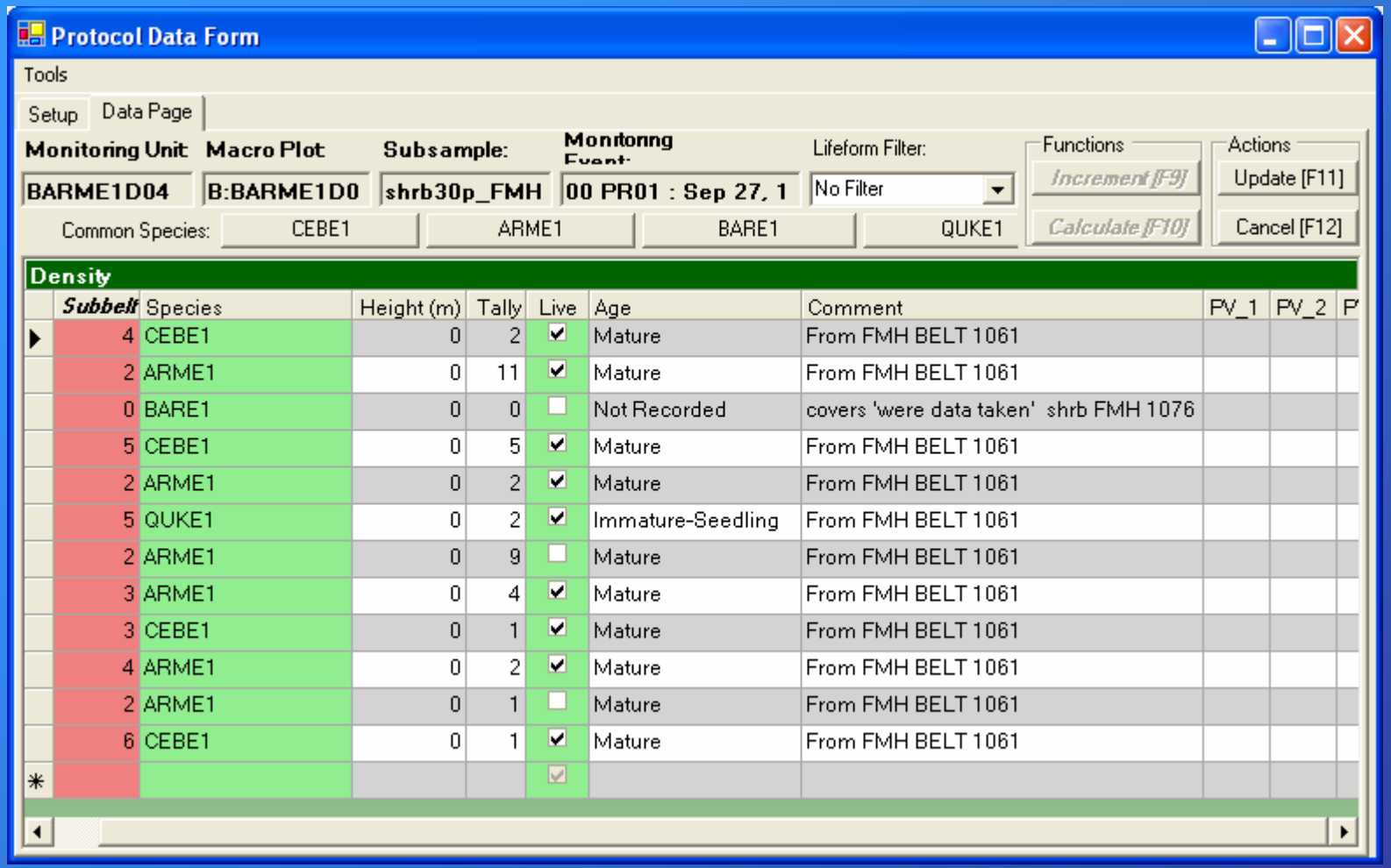
FEAT

- **F**ire **E**cology **A**ssessment **T**ool
- In use for 3 years across the NPS
- Suited to other environmental monitoring programs
- SQL Server 2000 Desktop Engine
- ArcMap 9.1
- Primarily a tabular application
- GIS plays a supporting role

Protocol Manager

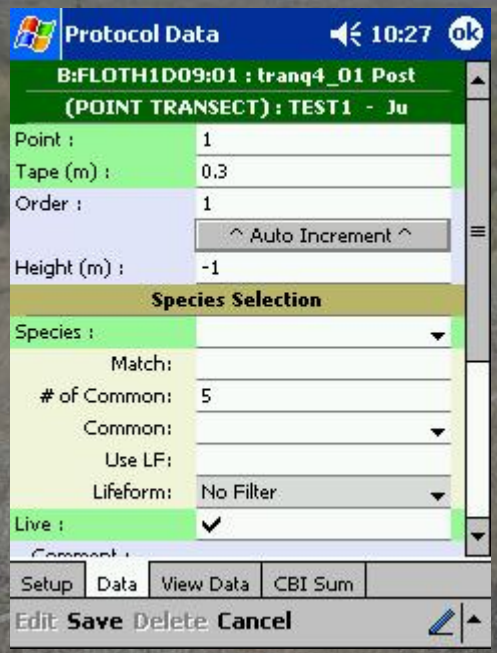
- FEAT is not built around a set of methods
- Supports any sampling method

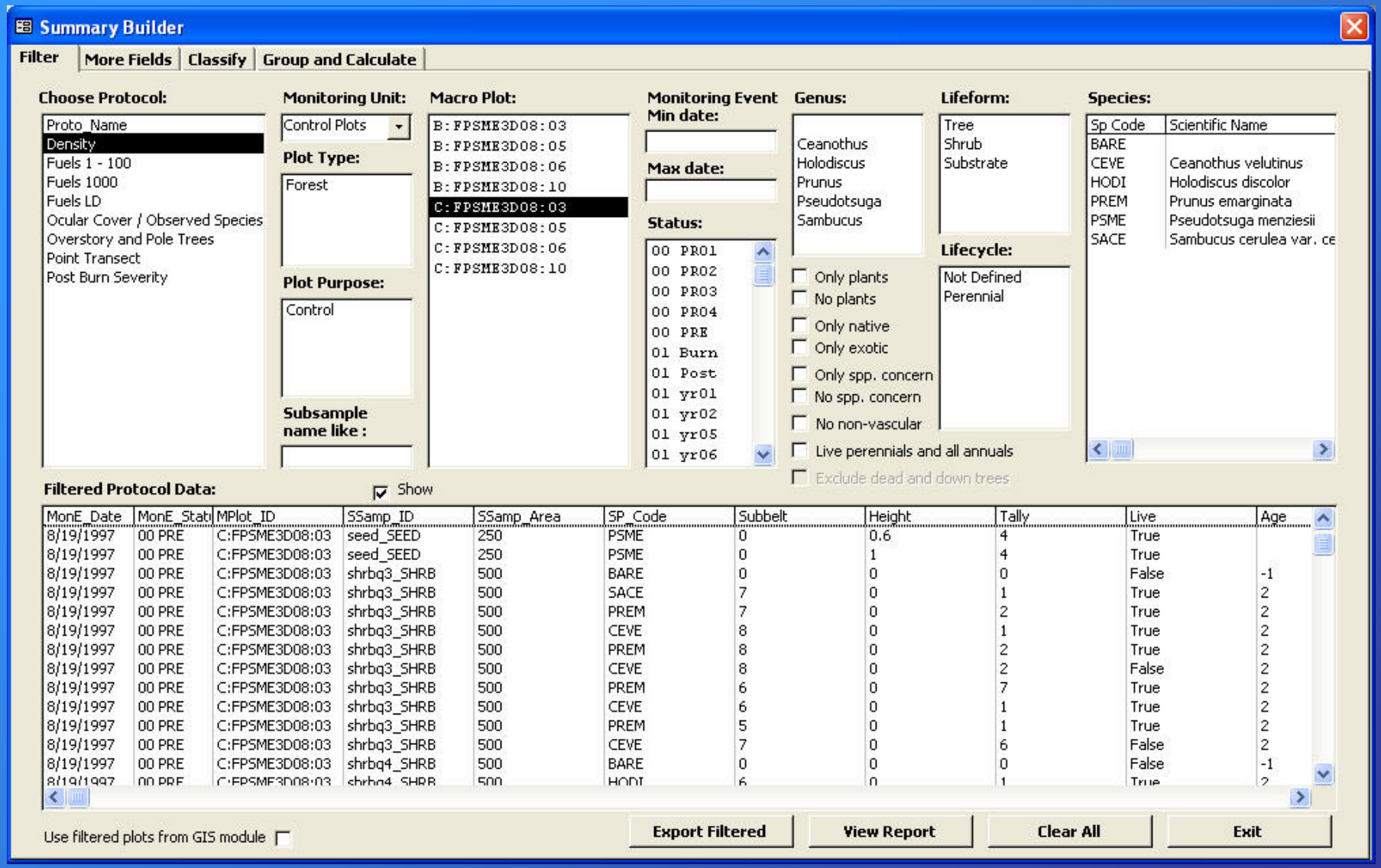




- Auto-generated data collection forms adapt to new methods

- FEAT runs on the PDA too

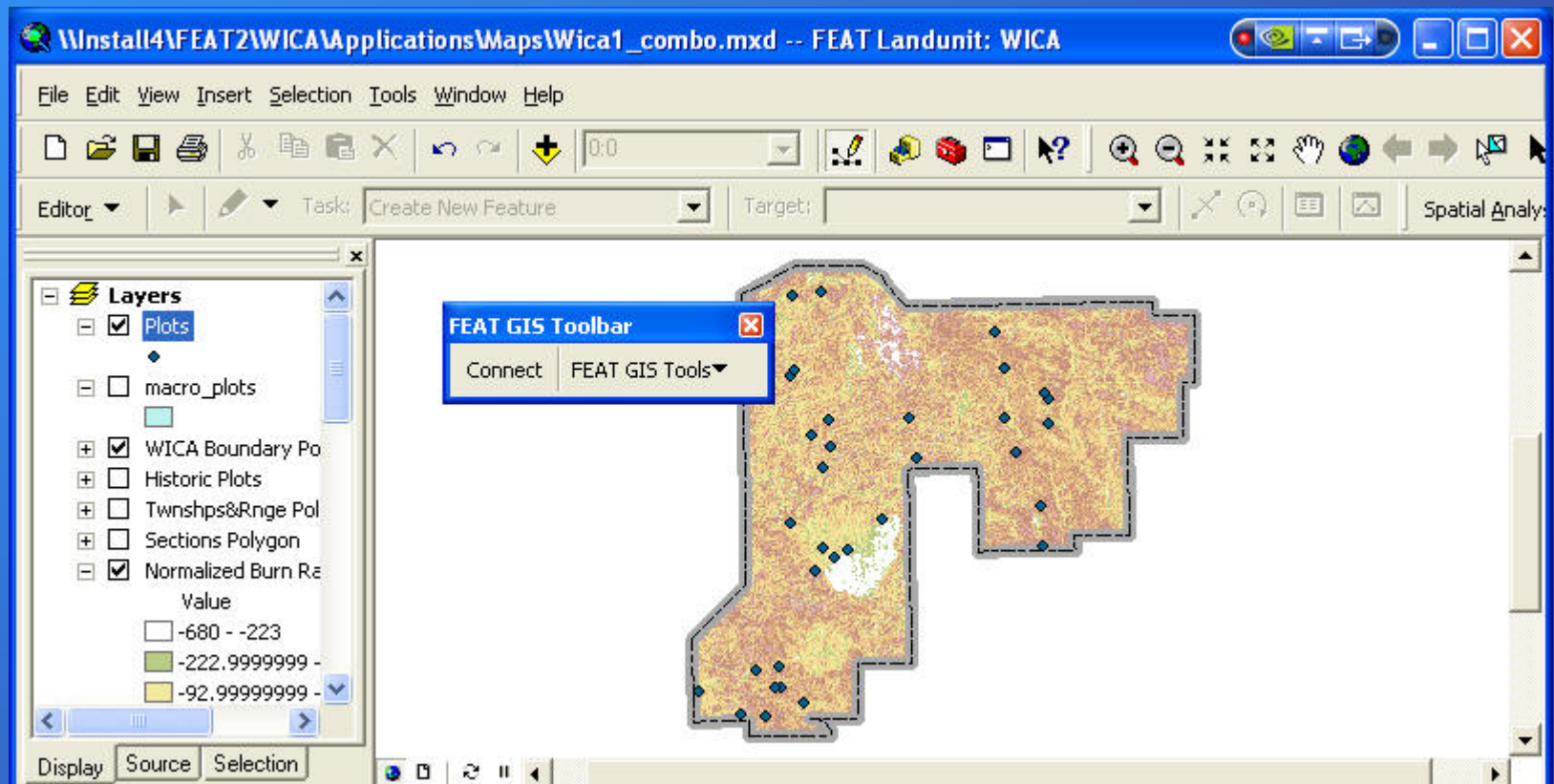




- Ad hoc query tool works with new methods

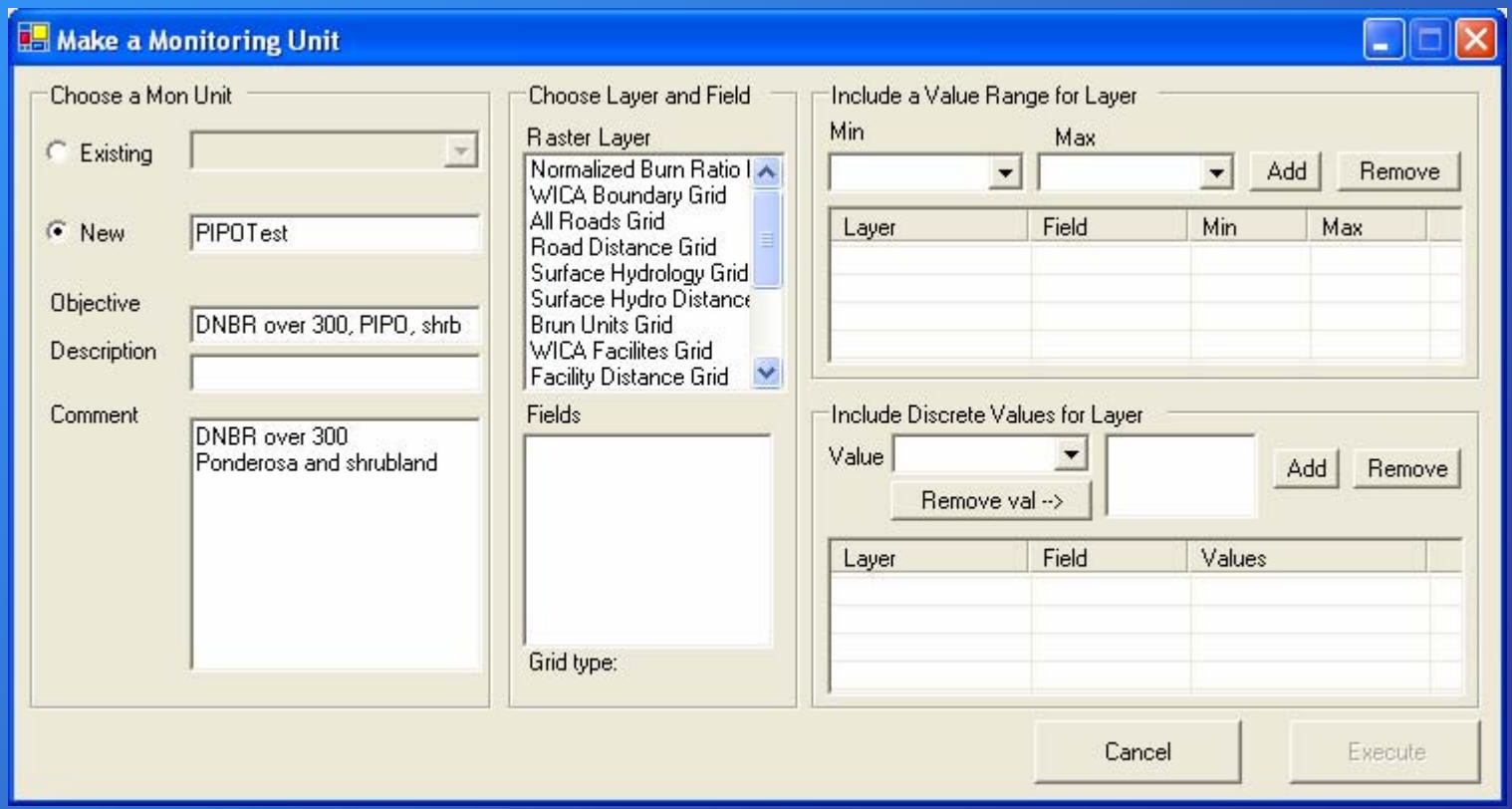
FEAT toolbar in ArcMap

- Optional component of FEAT
- Assumes the help of a GIS specialist



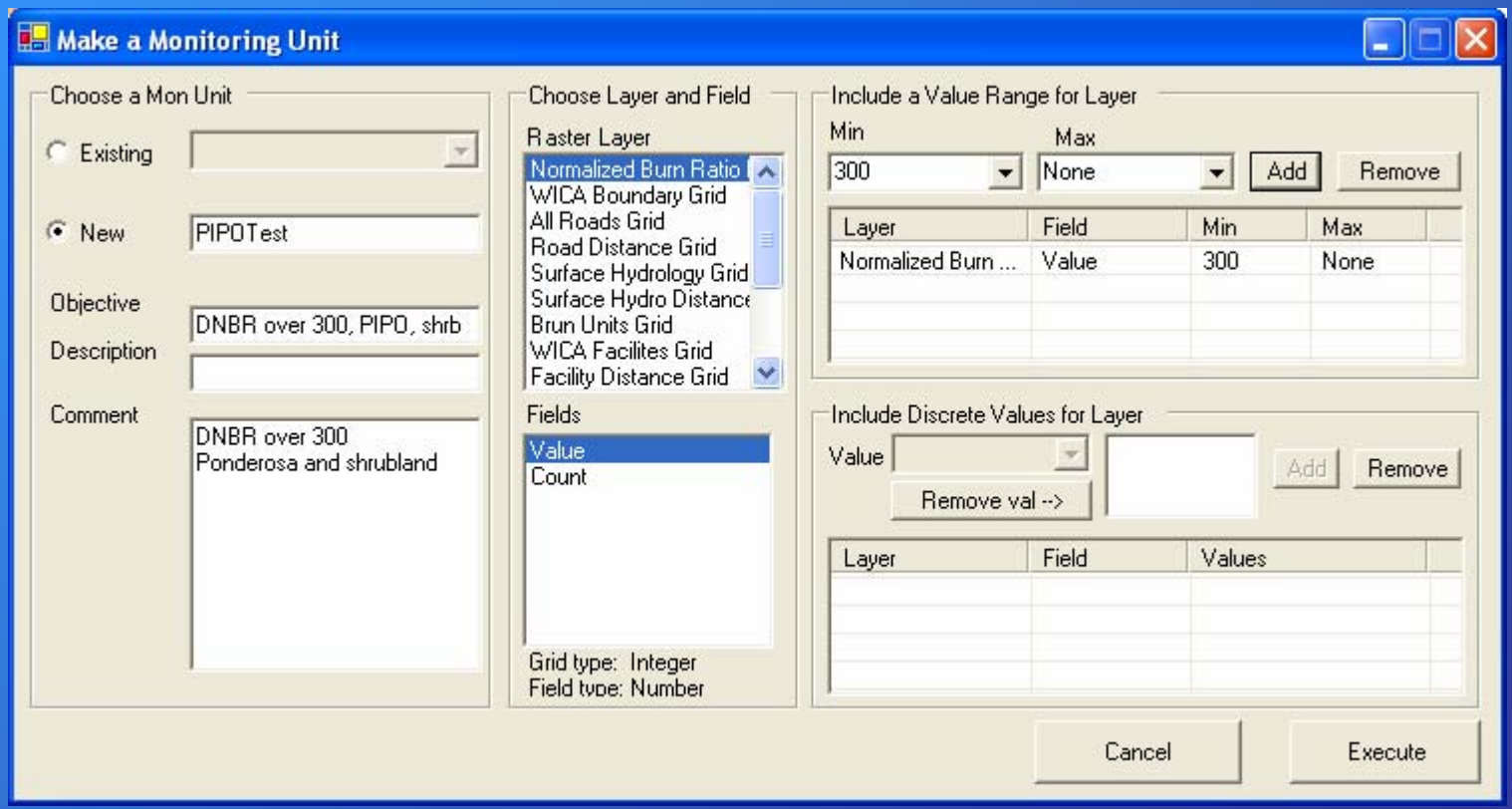
Stratify the Landscape

- Stratify the landscape into Monitoring Units



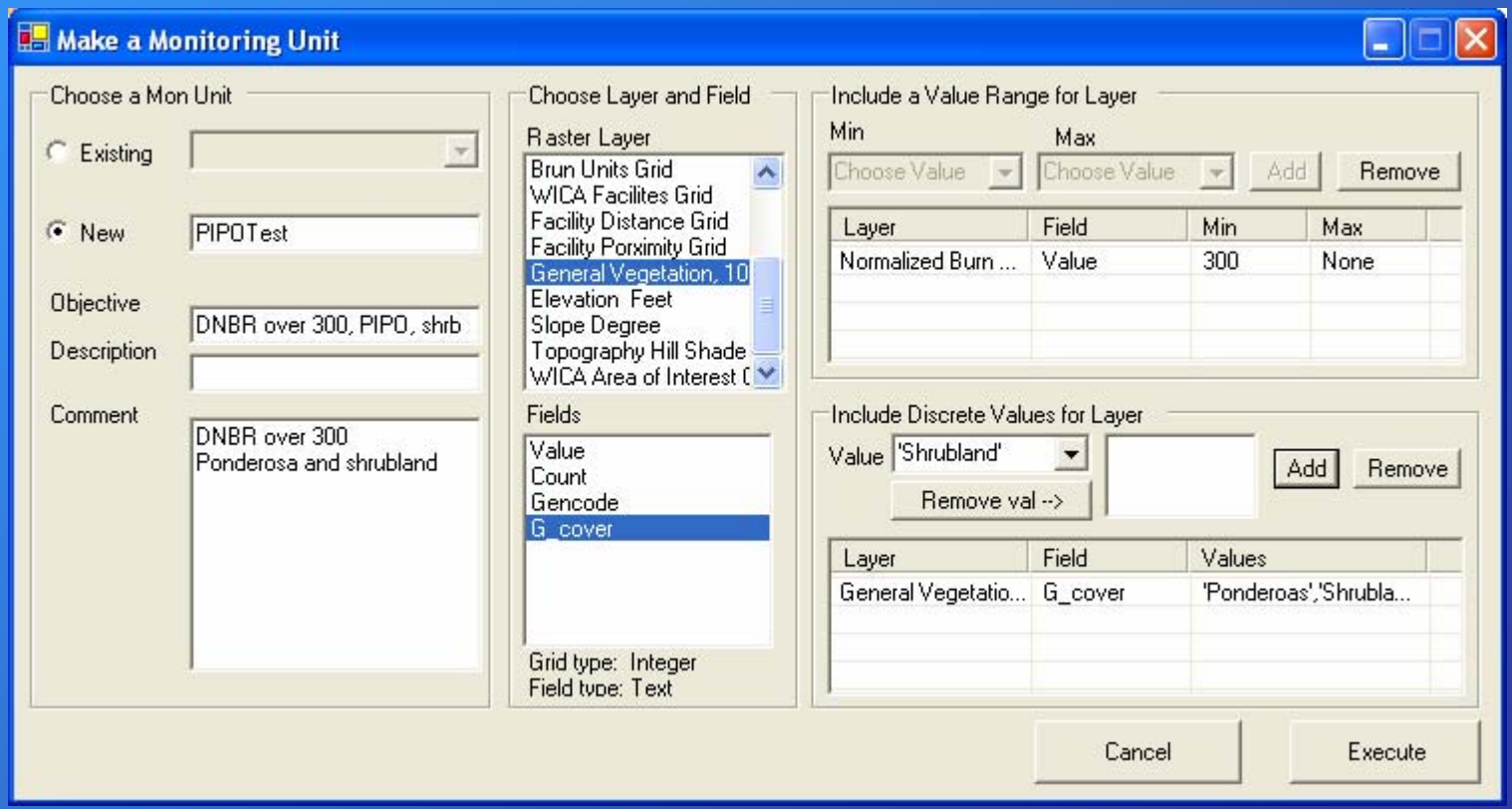
Stratify the Landscape

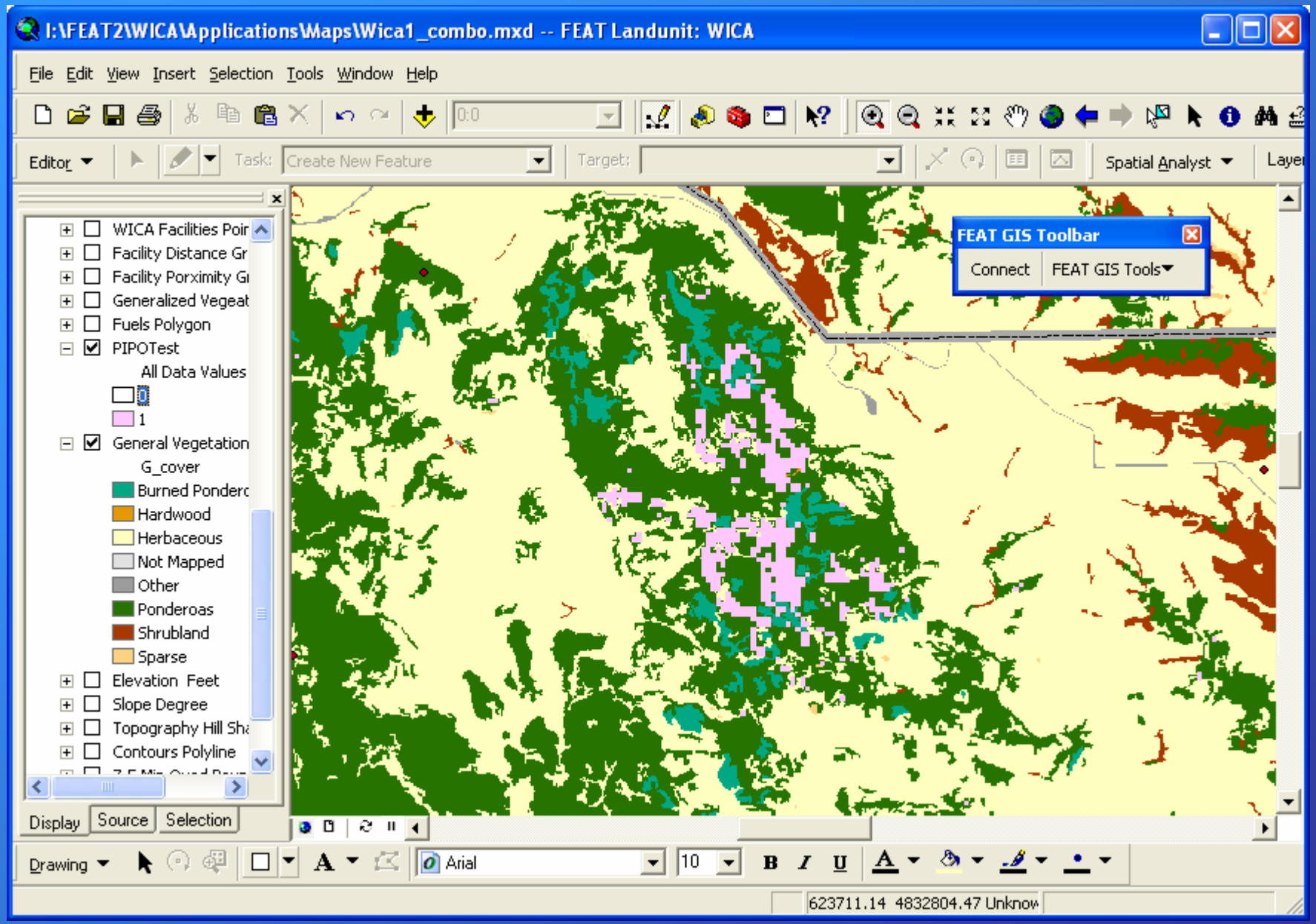
- Stratify the landscape by a range of values



Stratify the Landscape

- Stratify the landscape by discrete values



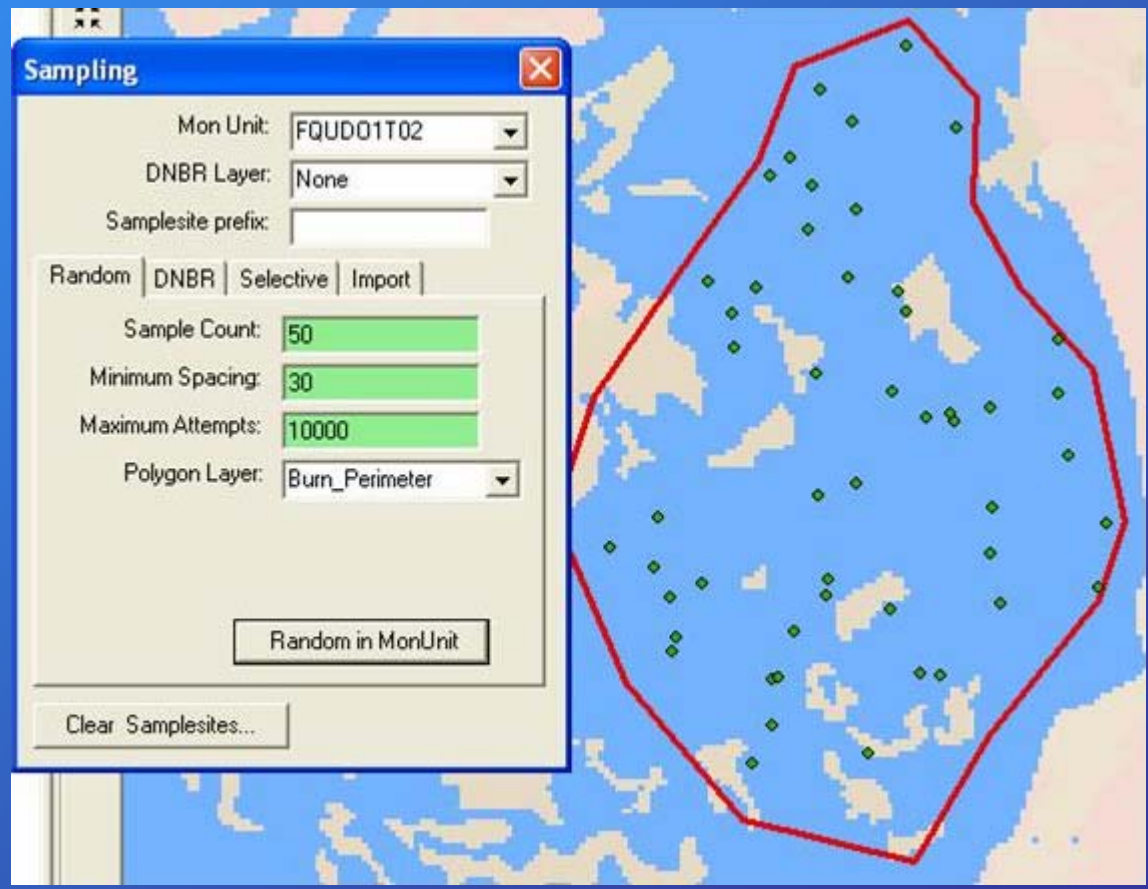

I:\FEAT2\WICA\Applications\Maps\Wica1_combo.mxd -- FEAT Landunit: WICA
File Edit View Insert Selection Tools Window Help
Editor
Task: Create New Feature
Target:
Spatial Analyst
FEAT GIS Toolbar
Connect
FEAT GIS Tools
WICA Facilities Poir
Facility Distance Gr
Facility Porximity Gi
Generalized Vegeat
Fuels Polygon
PIPOTest
All Data Values
0
1
General Vegetation
G_cover
Burned Ponderc
Hardwood
Herbaceous
Not Mapped
Other
Ponderoas
Shrubland
Sparse
Elevation Feet
Slope Degree
Topography Hill Sha
Contours Polyline
Display
Source
Selection
Drawing
Arial
10
623711.14 4832804.47 Unknow

Stratify the Landscape

- Existing plots can be associated with new Monitoring Units
  - In response to pilot sampling
  - In response to new objectives

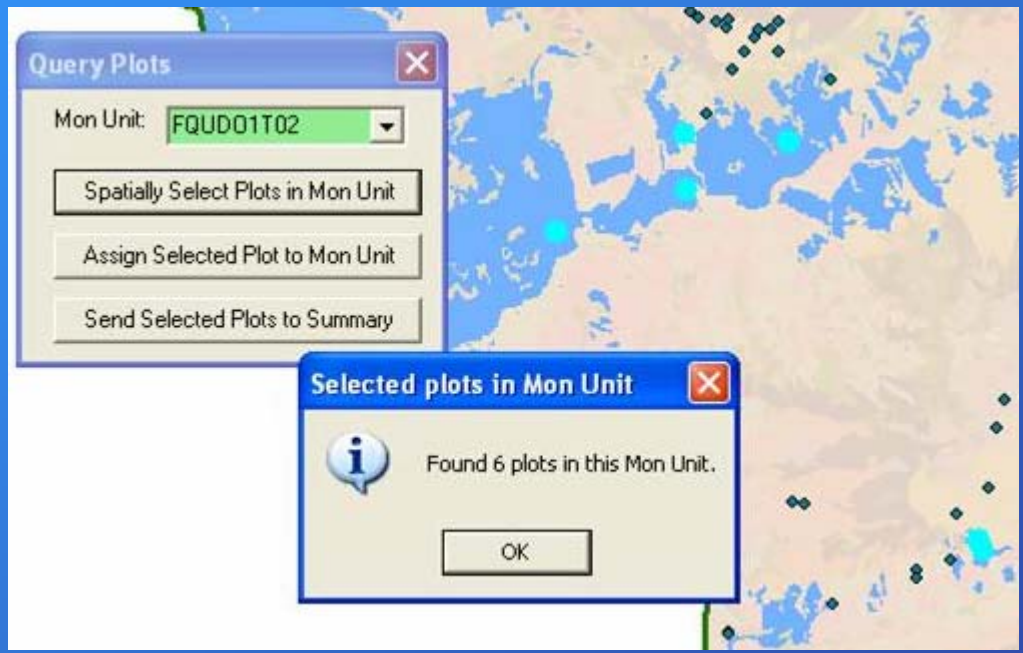
Sampling Setup

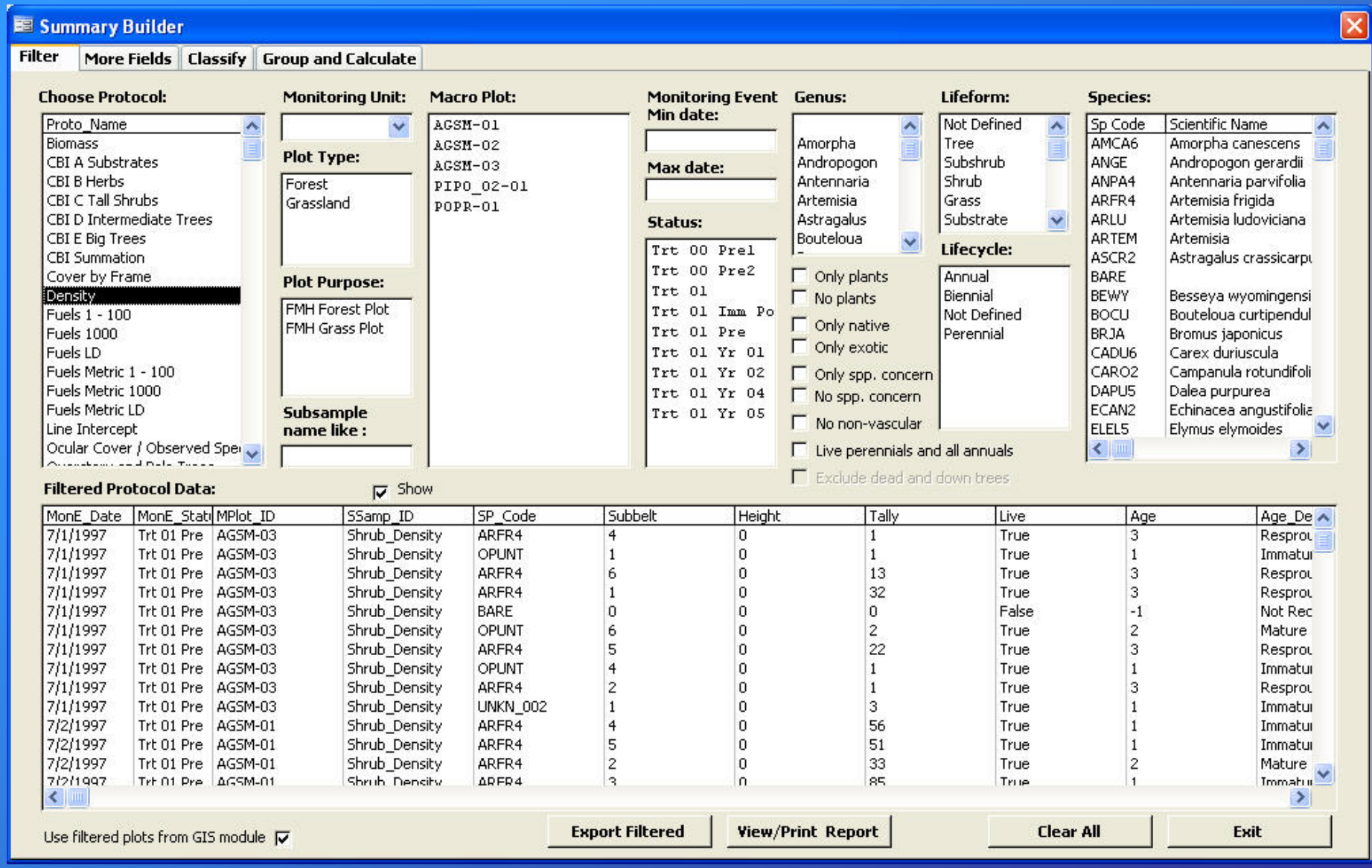
- Locate random points within a Monitoring Unit
- Limit within a polygon
- Import points

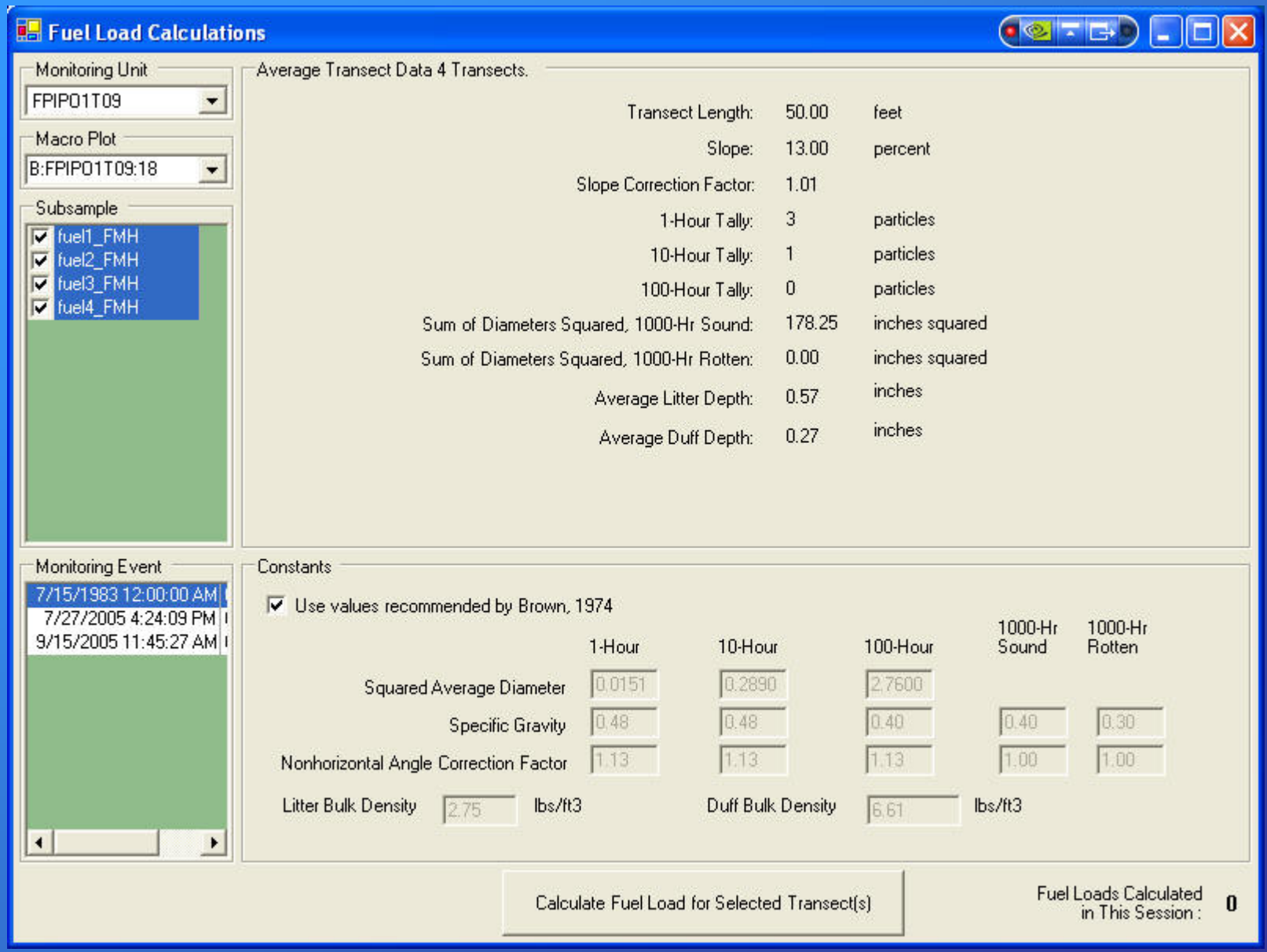


Analysis

- Select plots in ArcMap for analysis




Summary Builder
Filter
More Fields
Classify
Group and Calculate
Choose Protocol:
Proto_Name
Biomass
CBI A Substrates
CBI B Herbs
CBI C Tall Shrubs
CBI D Intermediate Trees
CBI E Big Trees
CBI Summation
Cover by Frame
Density
Fuels 1 - 100
Fuels 1000
Fuels LD
Fuels Metric 1 - 100
Fuels Metric 1000
Fuels Metric LD
Line Intercept
Ocular Cover / Observed Spe
Monitoring Unit:
Plot Type:
Forest
Grassland
Plot Purpose:
FMH Forest Plot
FMH Grass Plot
Subsample name like :
Macro Plot:
AGSM-01
AGSM-02
AGSM-03
PIPO_02-01
POPR-01
Monitoring Event Min date:
Max date:
Status:
Trt 00 Pre1
Trt 00 Pre2
Trt 01
Trt 01 Imm Po
Trt 01 Pre
Trt 01 Yr 01
Trt 01 Yr 02
Trt 01 Yr 04
Trt 01 Yr 05
Genus:
Amorpha
Andropogon
Antennaria
Artemisia
Astragalus
Bouteloua
Only plants
No plants
Only native
Only exotic
Only spp. concern
No spp. concern
No non-vascular
Live perennials and all annuals
Exclude dead and down trees
Lifeform:
Not Defined
Tree
Subshrub
Shrub
Grass
Substrate
Lifecycle:
Annual
Biennial
Not Defined
Perennial
Species:
Sp Code
Scientific Name
AMCA6 Amorpha canescens
ANGE Andropogon gerardii
ANPA4 Antennaria parvifolia
ARFR4 Artemisia frigida
ARLU Artemisia ludoviciana
ARTEM Artemisia
ASCR2 Astragalus crassicarpu
BARE
BEWY Besseya wyomingensi
BOCU Bouteloua curtipendul
BRJA Bromus japonicus
CADU6 Carex duriuscula
CARO2 Campanula rotundifoli
DAPU5 Dalea purpurea
ECAN2 Echinacea angustifolia
ELEL5 Elymus elymoides
Filtered Protocol Data:
Show
MonE_Date | MonE_Stati | MPlot_ID | SSamp_ID | SP_Code | Subbelt | Height | Tally | Live | Age | Age_De
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | ARFR4 | 4 | 0 | 1 | True | 3 | Resprou
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | OPUNT | 1 | 0 | 1 | True | 1 | Immatur
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | ARFR4 | 6 | 0 | 13 | True | 3 | Resprou
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | ARFR4 | 1 | 0 | 32 | True | 3 | Resprou
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | BARE | 0 | 0 | 0 | False | -1 | Not Rec
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | OPUNT | 6 | 0 | 2 | True | 2 | Mature
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | ARFR4 | 5 | 0 | 22 | True | 3 | Resprou
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | OPUNT | 4 | 0 | 1 | True | 1 | Immatur
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | ARFR4 | 2 | 0 | 1 | True | 3 | Resprou
7/1/1997 | Trt 01 Pre | AGSM-03 | Shrub_Density | UNKN_002 | 1 | 0 | 3 | True | 1 | Immatur
7/2/1997 | Trt 01 Pre | AGSM-01 | Shrub_Density | ARFR4 | 4 | 0 | 56 | True | 1 | Immatur
7/2/1997 | Trt 01 Pre | AGSM-01 | Shrub_Density | ARFR4 | 5 | 0 | 51 | True | 1 | Immatur
7/2/1997 | Trt 01 Pre | AGSM-01 | Shrub_Density | ARFR4 | 2 | 0 | 33 | True | 2 | Mature
Use filtered plots from GIS module
Export Filtered
View/Print Report
Clear All
Exit

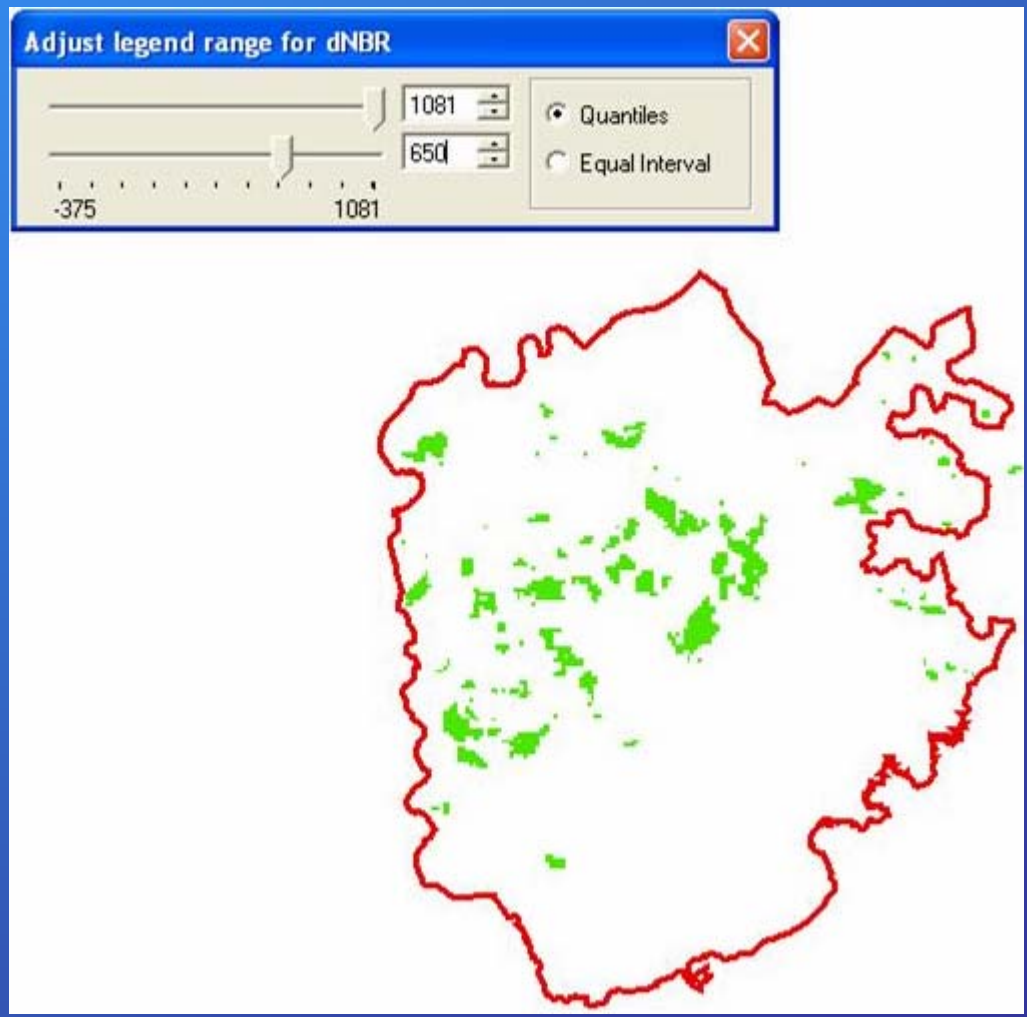

Fuel Load Calculations
Monitoring Unit
FPIPO1T09
Macro Plot
B:FPIPO1T09:18
Subsample
fuel1_FMH
fuel2_FMH
fuel3_FMH
fuel4_FMH
Monitoring Event
7/15/1983 12:00:00 AM
7/27/2005 4:24:09 PM
9/15/2005 11:45:27 AM
Average Transect Data 4 Transects.
Transect Length: 50.00 feet
Slope: 13.00 percent
Slope Correction Factor: 1.01
1-Hour Tally: 3 particles
10-Hour Tally: 1 particles
100-Hour Tally: 0 particles
Sum of Diameters Squared, 1000-Hr Sound: 178.25 inches squared
Sum of Diameters Squared, 1000-Hr Rotten: 0.00 inches squared
Average Litter Depth: 0.57 inches
Average Duff Depth: 0.27 inches
Constants
Use values recommended by Brown, 1974
1-Hour
10-Hour
100-Hour
1000-Hr Sound
1000-Hr Rotten
Squared Average Diameter 0.0151 0.2890 2.7600
Specific Gravity 0.48 0.48 0.40 0.40 0.30
Nonhorizontal Angle Correction Factor 1.13 1.13 1.13 1.00 1.00
Litter Bulk Density 2.75 lbs/ft3
Duff Bulk Density 6.61 lbs/ft3
Calculate Fuel Load for Selected Transect(s)
Fuel Loads Calculated in This Session : 0

CBI Support

- CBI: **C**omposite **B**urn **I**ndex: based on a set of field methods supported by FIREMON and FEAT
- dNBR: **D**elta **N**ormalized **B**urn **R**atio: LANDSAT-based

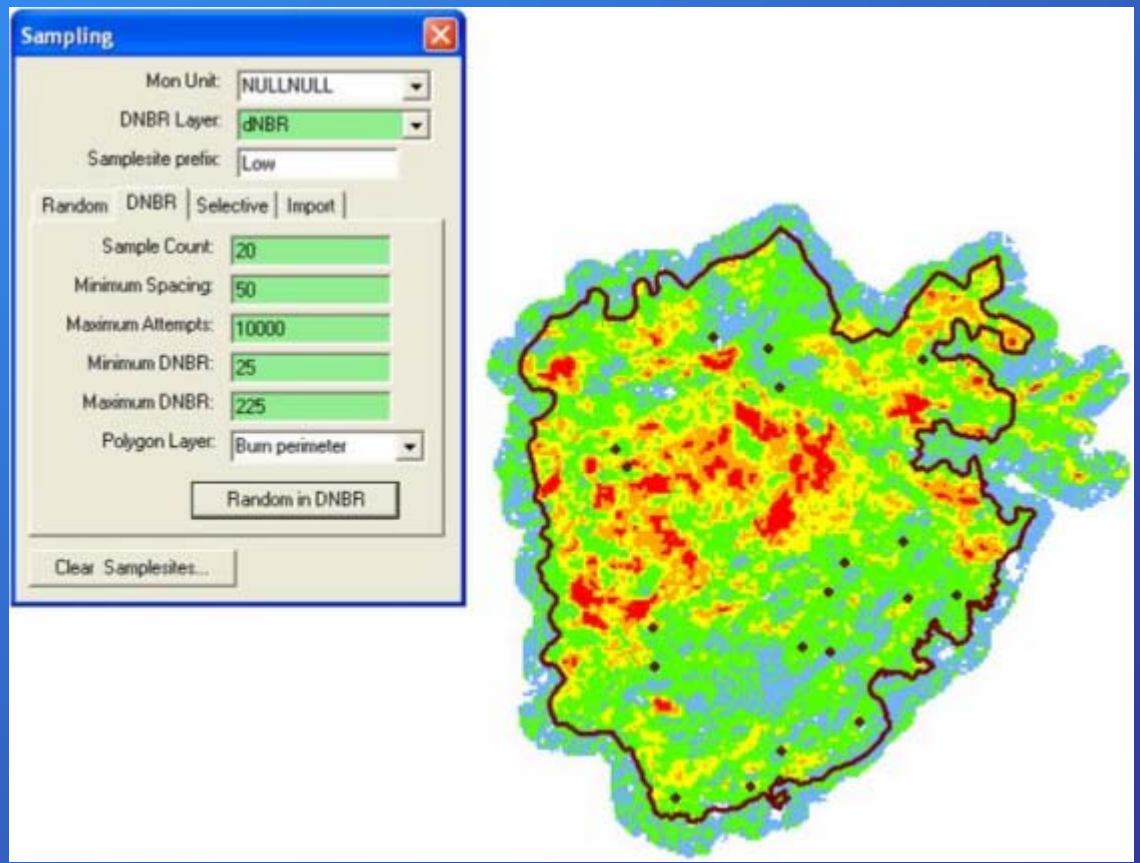
CBI Support

- Adjust legend of dNBR layer to identify severity thresholds

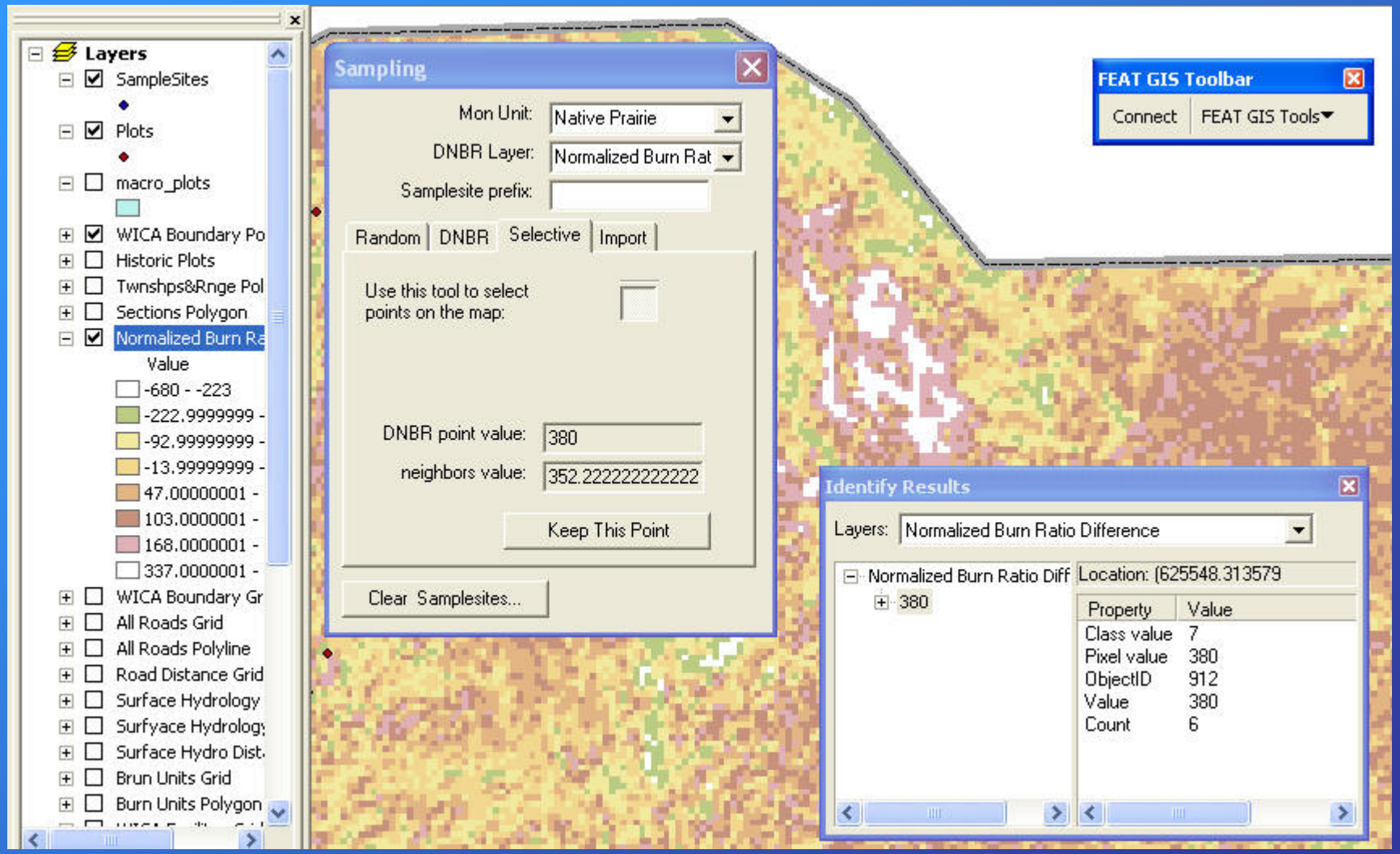


CBI Support

- Sample setup within a value range
- Point and neighbor values stored with points



- Selectively place points

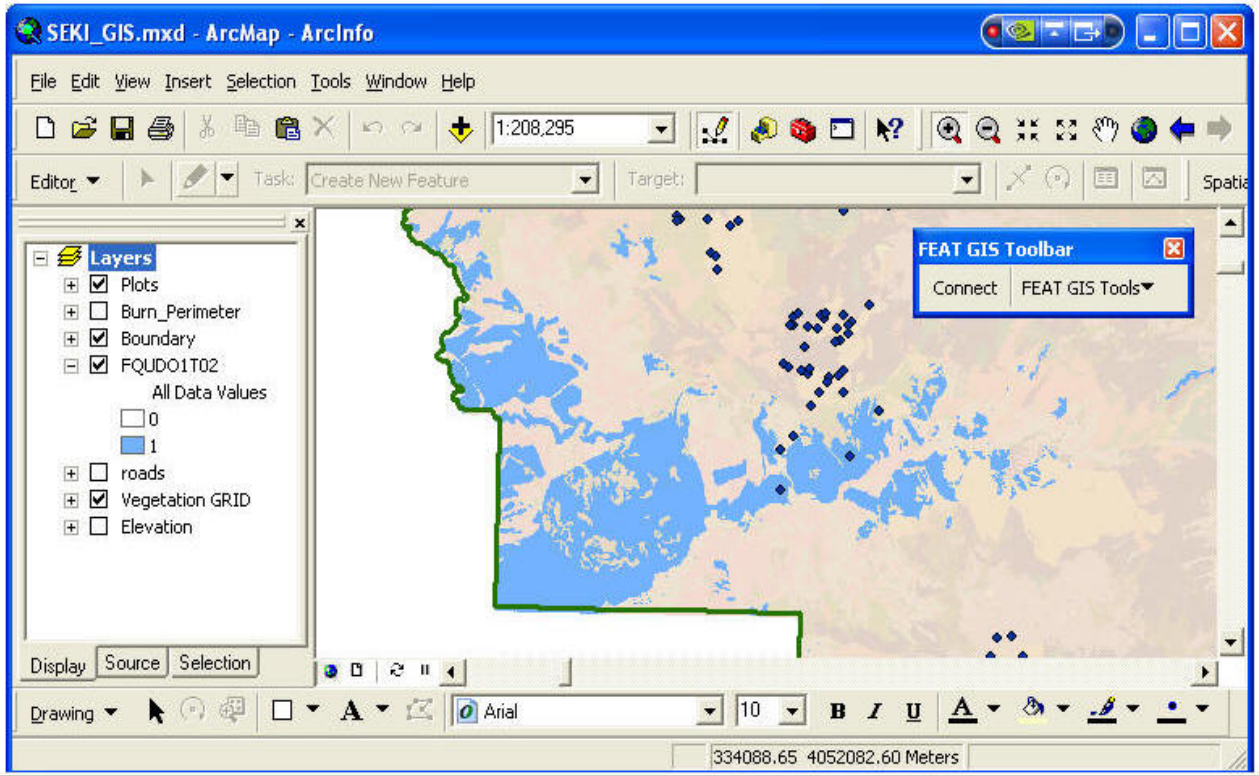


Definition of a Monitoring Unit

A ***monitoring unit*** is a division of the entire sample population of your *landunit*. Monitoring units are usually defined so that they represent an area on the ground. For example, a monitoring unit could consist of "all areas in the Ponderosa vegetation type between 1500 and 2000 meters above sea level, more than 500 meters from the nearest road and more than 1000 meters from the nearest stream."

Monitoring units provide a means to functionally group macro plots for management and analysis. Monitoring units will often be defined so that they overlap spatially, and macro plots can be associated with multiple monitoring units. Monitoring units can be given a spatial definition by using FEAT Spatial.

Monitoring units are not required to have any spatial meaning. They can be defined for temporary administrative or analysis purposes.



Spatial Dynamics Development Forum - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://forum.spatialdynamics.com/

Spatial Dynamics Development Forum

Control Panel

Login | Log Out | Register

My Profile | Member List

Forums | Search | FAQ | Contact Admin

Logged in as: Austin Streetman

Forum Announcements

What is the Fire Ecology Assessment Tool (FEAT)? -- *6/13/2005 10:00:00 AM*

The NPS Fire Ecology Monitoring Program developed FEAT to support fire effects monitoring, however, this tool is not limited to fire effects monitoring. It can also be used for other natural resource applications..... (See the About FEAT section for more information on FEAT.)

!!!! ANNOUNCEMENTS !!!! -- *6/13/2005 10:00:00 AM*

- 06/12/06 Forum upload problem from the NPS network **(more...)**
- 04/04/06 Wait to buy new PDA's with **Windows Mobile 5** **(What if I already did?)**
  - 03/10/06 Check out this **FEAT compatible PDA** running Pocket PC 2003 SE....
- 12/19/05 Don't use **ActiveSync 4** (unless you have Mobile 5) **(why?)**
- 12/19/05 Don't use the **'IN-ACTIVE'** mon unit. **(why?)**

FEAT USER'S GUIDE -- *6/7/2005 4:00:00 PM*

FEAT User's Guide: **featthelp.spatialdynamics.com** FEAT Spatial User's Guide: **featgishelp.spatialdynamics.com**

Delete All Cookies : : Mark All Forums read : : Reset Last Visit Time : : Close All Categories

Forum Description	Topics	Posts	Last Post
[FEAT]			
How to Use this Forum Helpful information on navigating through this forum Moderators Spatial Dynamics , NPS Moderators **Sub-forums:** FAQs	9	11	Looking up FEAT error message .. 1/27/2006 12:43:52 PM Austin Streetman
About FEAT General information dealing with FEAT, Business Needs Analysis, Upcoming Features, Link to FEAT documentation Moderators Spatial Dynamics , NPS Moderators **Sub-forums:** Pictures from the Field	6	6	FEAT Documentation .. 7/26/2005 11:00:53 AM Sabrina Beus
Download/Install FEAT You must register as a member of this forum to download FEAT Moderators Spatial Dynamics	6	6	Summary Builder 2.4 update 1 .. 2/23/2006 3:10:04 PM Austin Streetman
FEAT 2.4 User Support Issues, questions, and comments related to FEAT 2.4. This forum covers both the Desktop and Mobile version. Moderators Spatial Dynamics , NPS Moderators	92	238	RE: Datum Change .. 7/28/2006 12:01:17 PM Austin Streetman

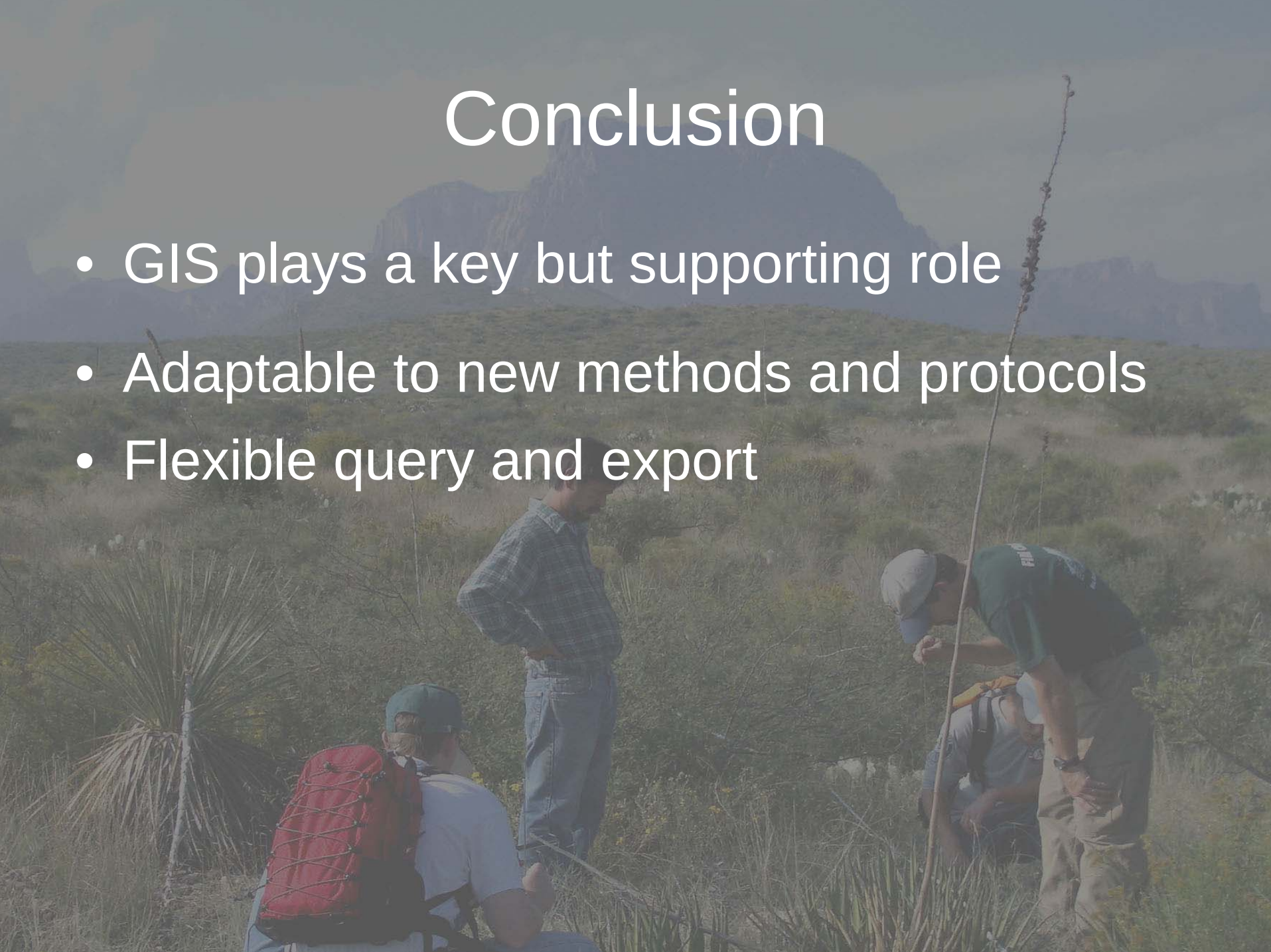
Internet

Future

- FIREMON / FEAT integration Fall 2007
- More vector inputs in stratification
- Legend tool to work with five severity classes
- Display of analysis results
- Plot photos
- GPS integration

Conclusion

- GIS plays a key but supporting role
- Adaptable to new methods and protocols
- Flexible query and export



For more information

- *FEAThelp.SpatialDynamics.com*
- *Forum.SpatialDynamics.com*
- Nate Benson, NPS Fire Ecologist FMPC

  208-387-5219 Nate_Benson@nps.gov
- Austin Streetman, Spatial Dynamics

  208 345-6788 Austin@SpatialDynamics.com