Georeferencing Specimen Data in GIS: DIVA-GIS
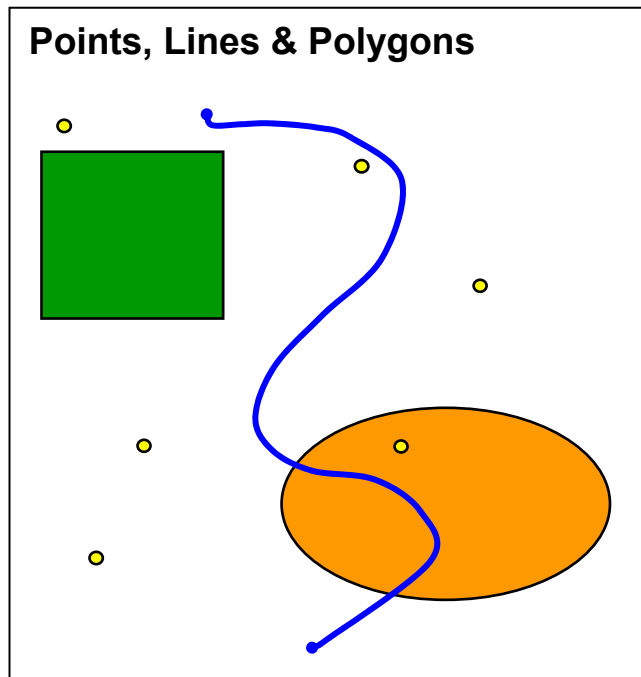
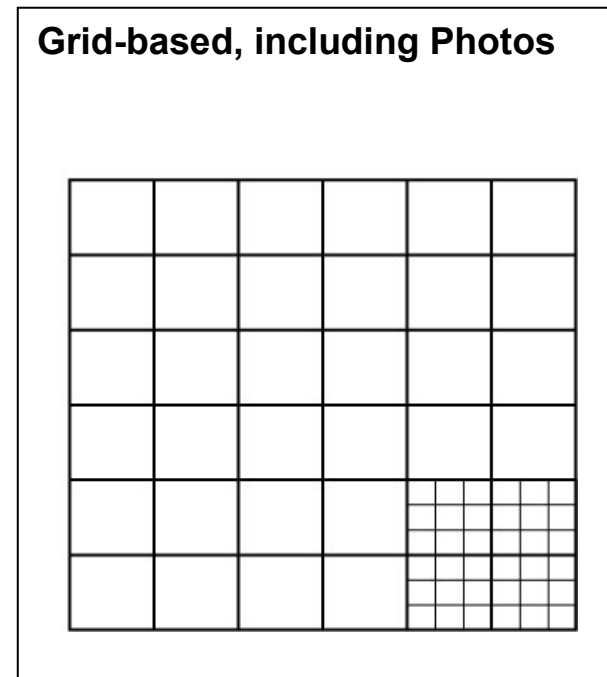# Spatial Data Models
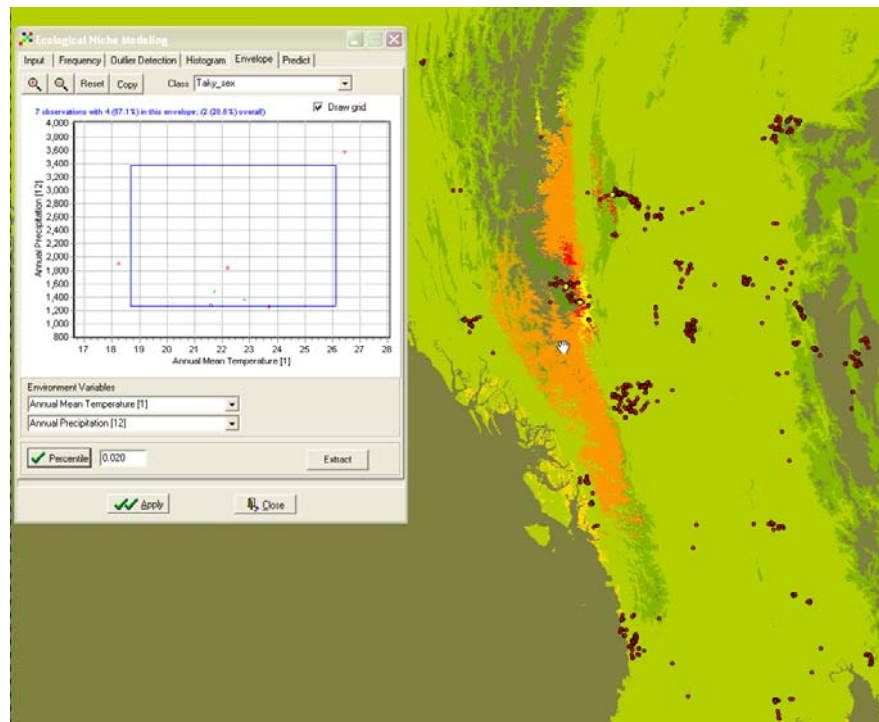
- Vector

- Raster

Points, Lines & Polygons

Grid-based, including Photos
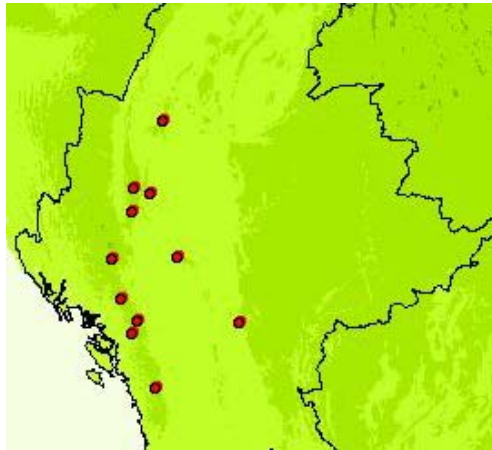
DIVA-GIS Introduction

- Free program for biologists, specifically designed for biodiversity research, niche modeling

- Niche modeling is constructing empirical models of spatial distribution of a species based on the environmental conditions where the species is known to be present (use BIOCLIM, DOMAIN in DIVA).

- DIVA is similar to ESRI products, but easier to use for simple functions

- All files must be installed in the same folder and directory that they were originally made in, in order to open the project (*.div) on your computer (C:/DIVA-GIS/

- You can export DIVA as .dvx files to open on another computer

- In general, when you start a GIS project, keep your files in one folder

Add A New Shapefile
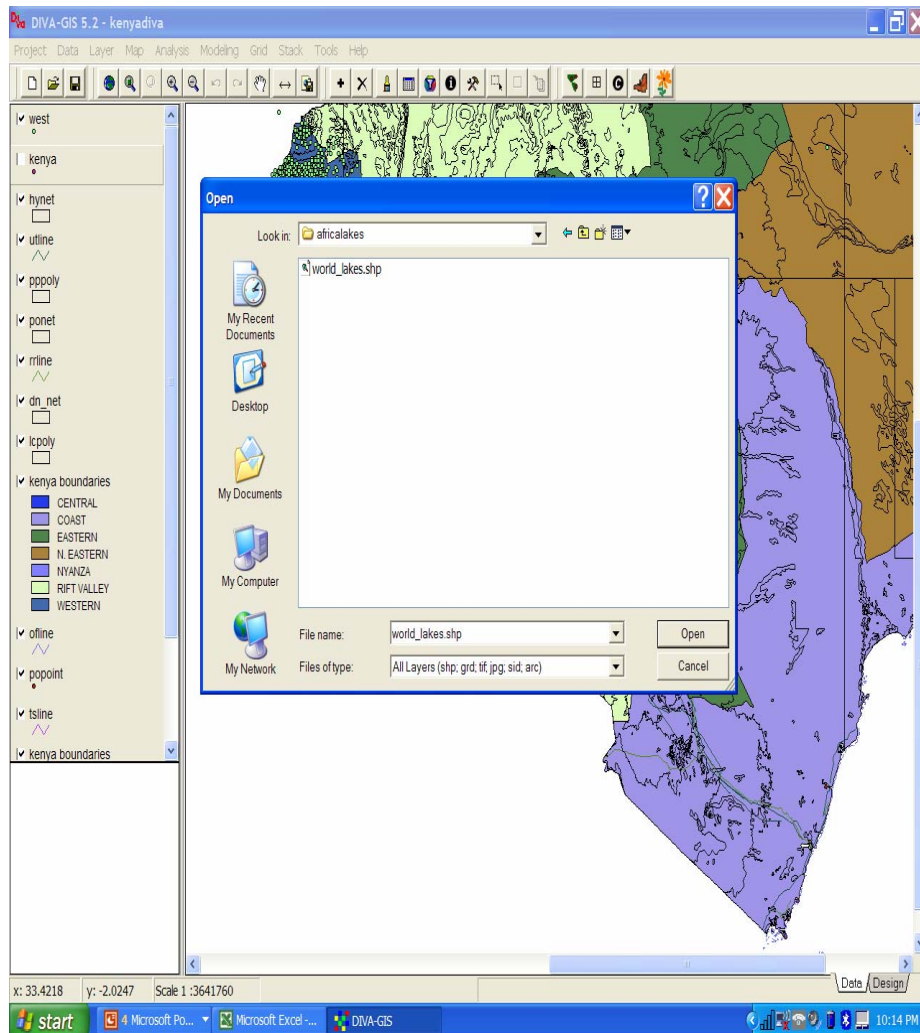
- The layers on the left are called features, many of them are "shapefiles" with the extension .shp
- To add a new shapefile, Click the "+" on top menu
- Find shapefile of interest (e.g. worldlakes.shp in Kenya-DIVA folder)
- Add it to layers on left
- Adjust position in layers, change display values
- Hit magnifying glass with box in it to "Zoom to Selection"
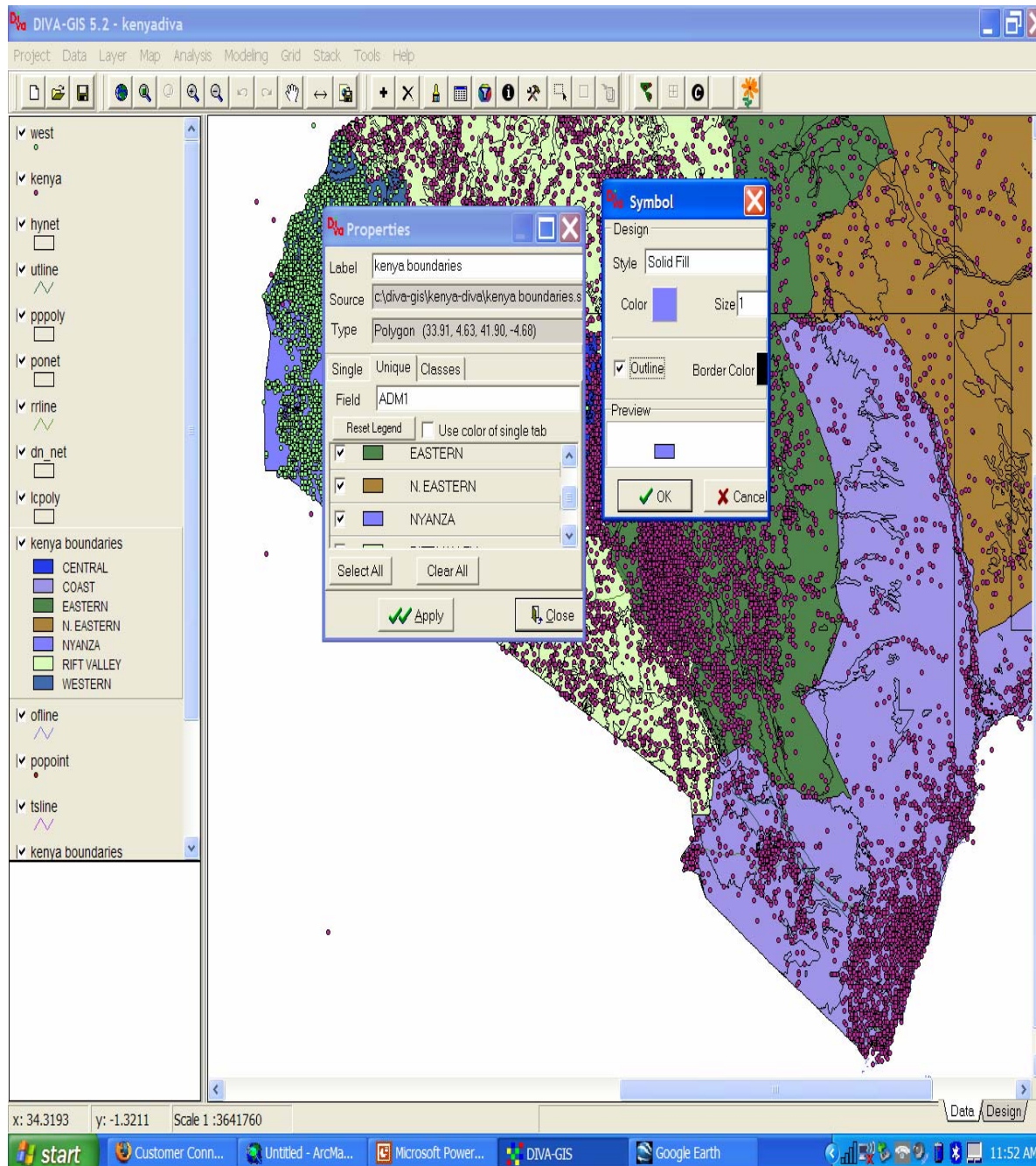
Editing DIVA Features:

- To do anything with a feature (changes colors, symbols, get information, etc) first select it.

- Right click, a properties menu will appear

- Then change the color, symbols, etc. by double clicking on the box

Editing Features
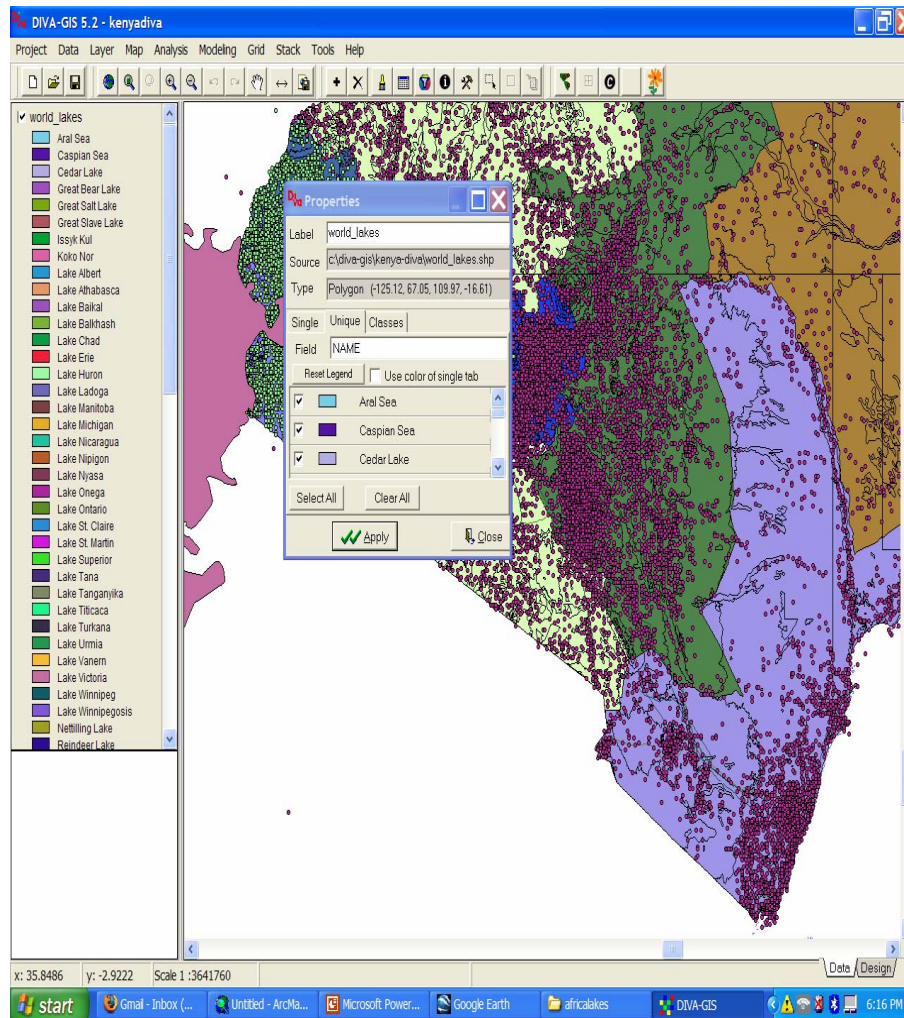
- To change a single class to multiple unique values with different colors, first set the style of the single value to solid fill

- Choose "Unique Values", and hit reset legend.

- Right click directly on the feature in the left menu to change the order of the layers, etc.

To Display Coordinates From
A Text/Database File
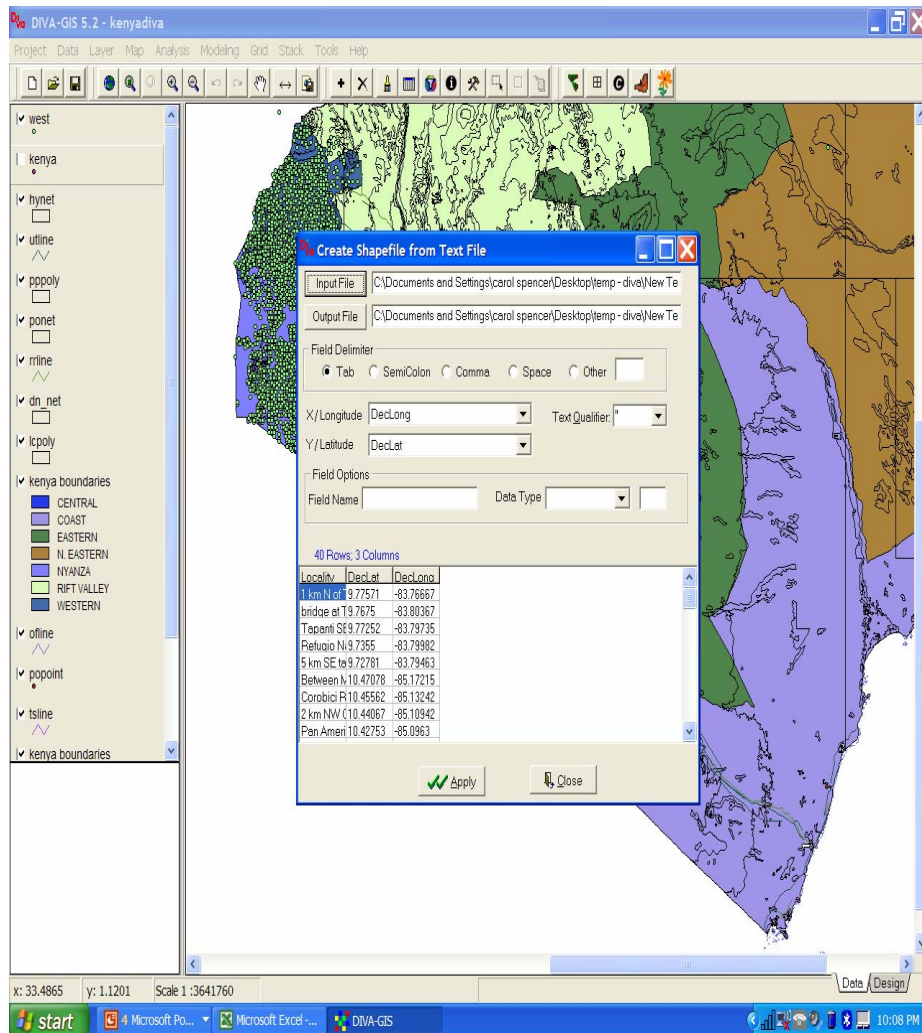
- Click "Data" on top menu
- Select "Import points to shapefile", choose "From .TXT", pick file
- Check the lat/long fields (must be in decimal degrees)
- Change Field names if necessary
- Click Apply
- New shapefile will appear on layers on the left

To Make A Selection (Select by Values)
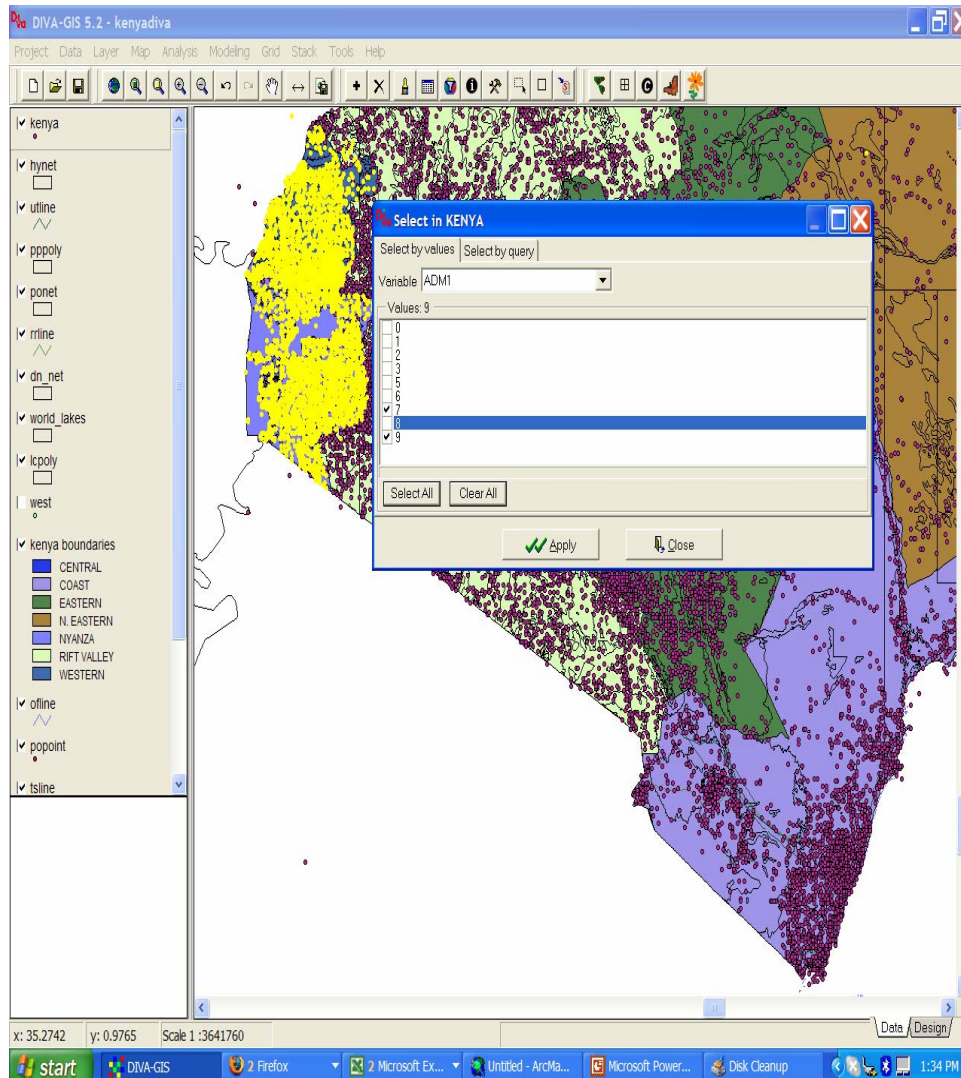
- Choose the "Kenya" data on the left (these are NIMA features data)
- Select the "Query" tool (hammer)
- Click "Select by Values" tab, choose Adm1
- Leave checkmarks on 7 and 9 (Western and Nyanza Province), click apply
- The selected points will appear in yellow
- See statoids.com website for NIMA adm designations

Make selection into a shapefile
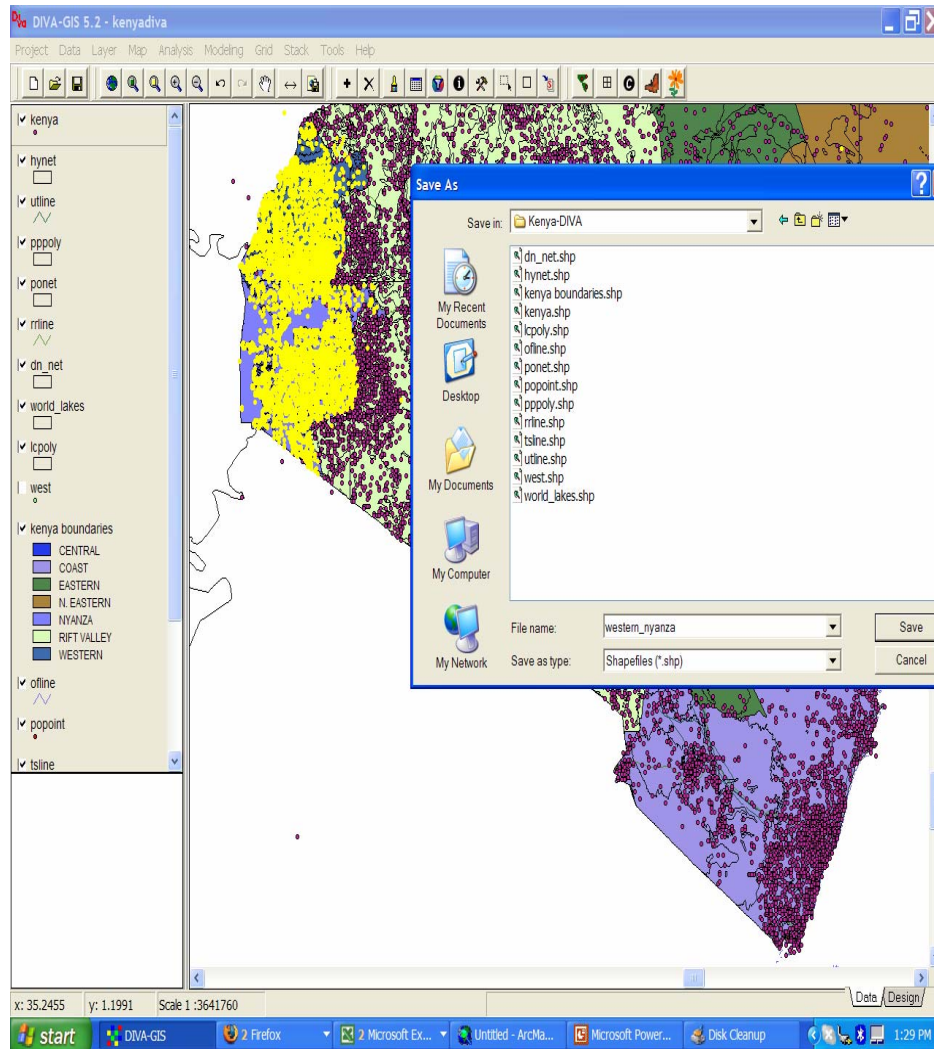
- Hit "Convert to Shapefile" button (s with arrow)
- These selected points will appear as new shapefile on the left

Querying for features (Select by Query)
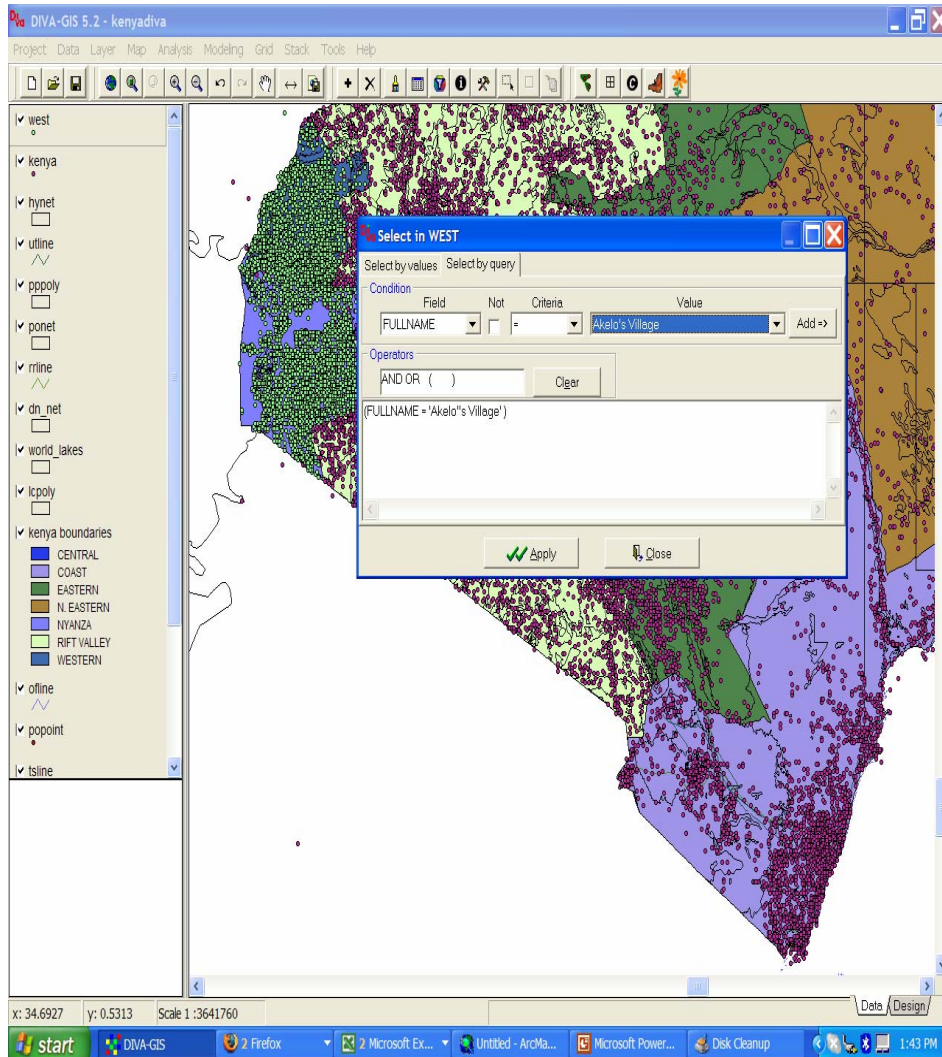
- Select on the feature on the left
- Click the "query" (hammer) button, use "Select by Query" tab
- Field is "Fullname"
- Criteria is "="
- Choose a name in value and hit "Add"
- Click Apply
- Zoom to selected feature by hitting button with yellow box in magnifying glass

Measuring on DIVA
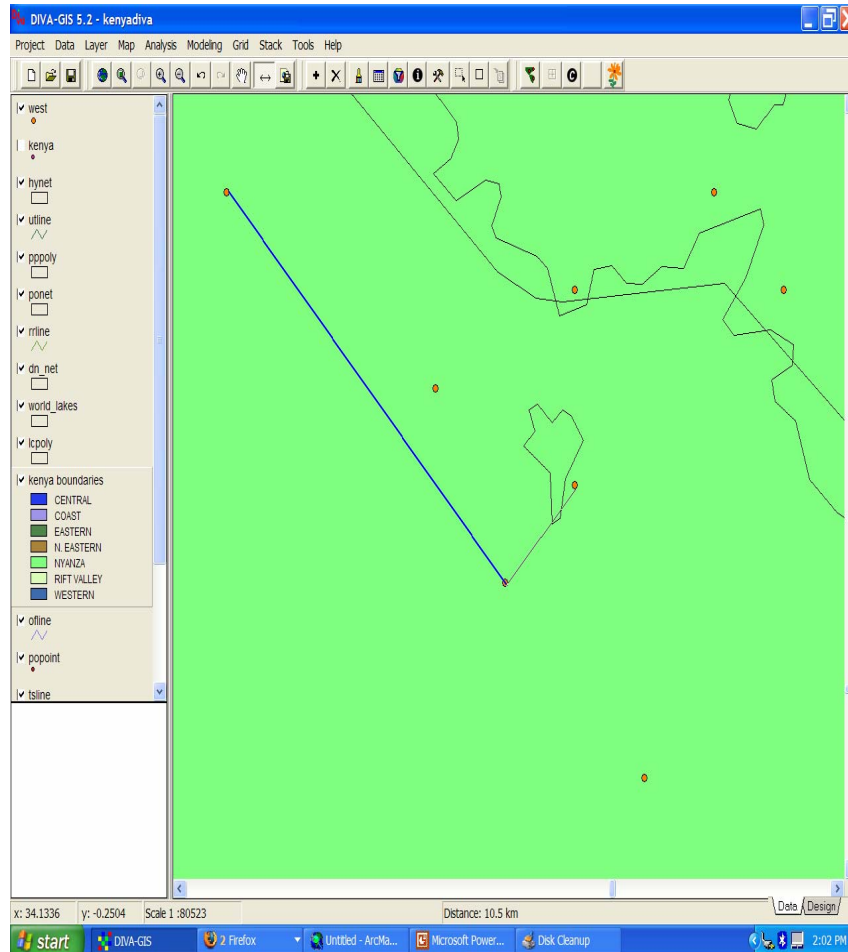
- Select the arrow tool
- Click on the starting point
- Click on the end point
- The distance appears on the bottom middle (m, km)
- Double click to end the line
- Remember that NIMA data are only accurate to nearest minute (why the points appear in a grid)