Review from last lecture (Voting)
Finish Chapter 7 - buffer, dissolve, appending
Data set in CH7B_class_ex folder
Area/length attribute - geoDBs vs. shape files
Calculate geometry (X,Y coords.)
(optional: Buffer wizard)
Lab: Start mini project 3 (Due Nov. 5)
Which types of operations are shown here?

Top=Intersect
Bottom=Union

T=Union
B=Intersect
For which operation is the order of layers of importance?

- Clip
- Union
- Intersect
- All
Which of these operations affect the shape **AND** attribute table (graphics + DB)?

- Clip
- Erase
- Intersect
- All
Dissolving:

Choose attribute(s) to dissolve on

Dissolve lines on street name

Dissolve polygons on habitat class attribute
Dissolve Tool

If no attribute is selected - dissolving is “graphical” only

Uncheck multipart to create single part features (If you need correct number of features)
Pre dissolve (DMLobe_MDRock_Union.shp)

Note: each polygon’s REGION attribute value is either 0 or 2
Dissolve with Region attribute (and multipart = ON)

Why only 1 polygon per Region? (Region 0 actually has 5 “physical” polygons, use single part to get them)
summarize Num_Deers attributes (while dissolving by Region)
Dissolved without attributes ("graphically") but as single part polygons
Optional: How to convert the multi-part polygon into many single polygons:

**Data Management Tools – Features – Multipart to Singlepart**
Buffering

- Creates single or multiple buffers (rings, polygons) around points, lines or polygons
- Buffer Tool (Single buffer): Adds a new attribute called **BUF_DIST** for buffer-distance
  - By default: no dissolving
- Multi-buffer tool
  - needs **list of distances** (50, 100, 200, 500)
  - creates multi-part polygons
  - attribute’s name is **distance**
  - Dissolves ALL by default
  - can take a long time
The Dissolve option in Buffering

Buffering with the NONE option (default): 1 buffer polygon per point/line

- Set **Dissolve** to ALL (to actually get dissolved buffers)
- Single buffer default is NONE
- But: Dissolving takes time! (Depends on number of features)
To dissolve buffers set Dissolve Type to ALL (or select from the list of Attributes)
Append (Merge)

• Combines feature classes into one layer (no dissolving of features!)

• To bring attributes along, tables of input features classes must match exactly: same classes, same order, same definitions

• TEST: combine tables

• NO_TEST: don’t combining tables, graphical appending only

• Merge: like Append but attribute table matching is more flexible
Length/Area calculations

- Area/Length fields in **Shapefiles** are **NOT** internally updated after geoprocessing operations
- **Solutions**?
  - Calculate Geometry (similar to Field calculator)
  - Convert shapefiles to GeoDB feature classes
  - ArcCatalog: create new GeoDB, convert shapefile, into feature class, within GeoDB, add to ArcMap
  - Polygon area: toolbox-utilities-Calculate Area
Calculate Geometry - right click on column in Attribute table

Note: it overwrites the chosen attribute!
Buffer wizard

**ArcMap Buffer Tool**

(May not survive GIS lab reboot?)

Tools > Customize in ArcMap.

Click the Commands tab.

Select Tools from the Categories list.

Click Buffer Wizard in the Commands list and drag it to the Tools menu on the Main menu.

Click Close in the Customize dialog box.
About buffers
Buffers are rings drawn around features at a specified distance from the features.

What do you want to buffer?

- The graphics in the data frame (Default Annotation Target)
- The features of a layer
  - pl_5mi_from_hwy
  - Number of features: 2207
  - Number of features selected: 31
- Use only the selected features

How do you want to create buffers?

- At a specified distance
  - 1 Kilometers
- Based on a distance from an attribute
  - CO_NUMBER
    - in Kilometers
- As multiple buffer rings
  - Number of rings: 3
  - Distance between rings: 10 Kilometers

Buffer distance

- Distance units are: Kilometers
Wrap up

• Copy Miniproject 3 data from GEOL552\data\miniproj3_data
  (includes Word file with instructions)
• Due Nov. 5, 28 points
• Geoprocessing and spatial join
• Example screenshots of steps A - D in example_screenshots folder
• Next: Editing (Ch. 12/13)