

Creating Buffers

ISTC Topic:

8.4

In this Chapter you will learn

- How to create a buffer around points, lines and polygons
- How to create multi-ring buffers
- What the difference is between dissolving and not dissolving buffers.

1. Creating buffers

There are a number of reasons why creating a buffer is beneficial. For example, in the figure on the right a 200 foot buffer is drawn along “Ridge to River” trails showing the areas that are most likely impacted by pedestrians and cyclists.



8.4: Creating Buffers

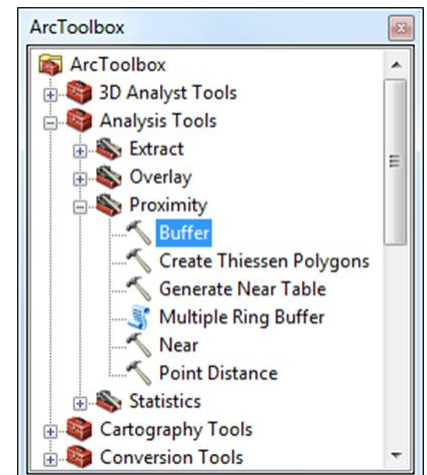


Exercise 1: Creating a buffer around polygons

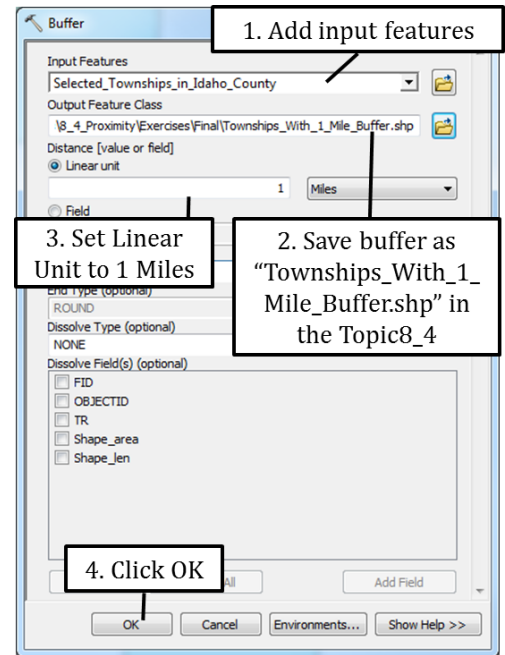
1. For this exercise you will create 1-mile buffers for three polygons in Idaho County. Start ArcMap and open a new map document and add the Selected_Townships_in_Idaho_County shapefile from the Topic8_4 folder to your map.



2. Open the ArcToolbox by clicking on the Arc Toolbox Window button on the Standard Toolbar as shown above.
3. Go To Analysis Tools > Proximity > Buffer. Note that since this is a frequently used tool you can also start it by clicking on “Geoprocessing” along the top of your screen and selecting “Buffer”.
4. Double click on “Buffer” in ArcToolbox to start the tool.



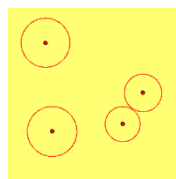
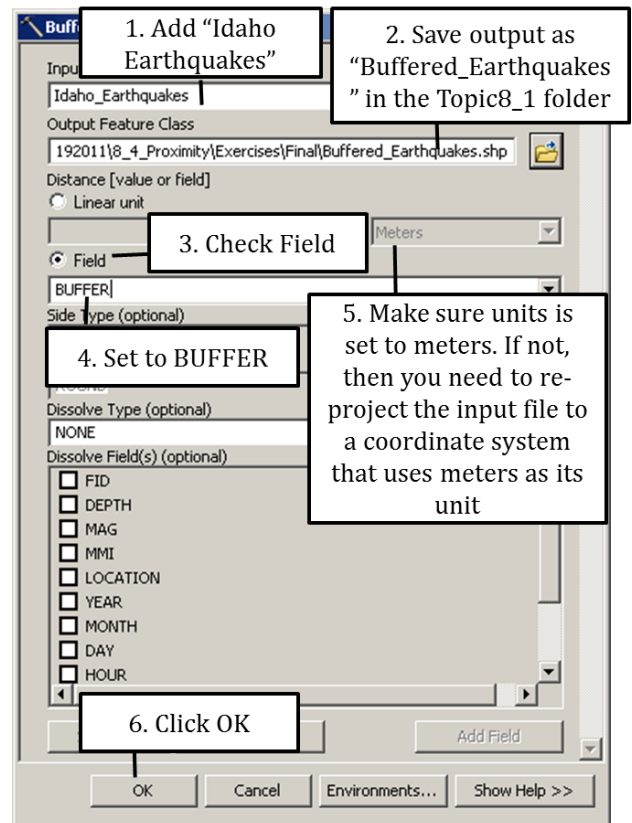
- Complete the tool dialog box as shown on the right.
- Examine the new buffer layer on your map.



8.4: Creating Buffers

Exercise 2: Using an attribute value to set the buffer size

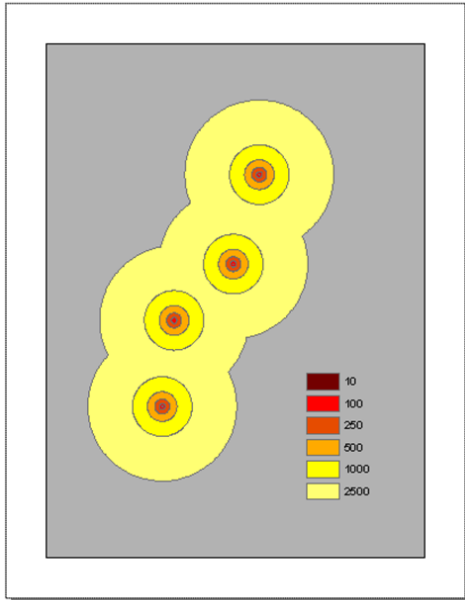
- Open a new map document and add the Idaho and Idaho_Earthquakes shapefiles.
- Open the attribute table for the Earthquake layer and notice the attribute called "BUFFER". When you compare the values in this attribute with those in the "MAG" field you will notice that the values in BUFFER are equal to $MAG * 1,000$. We will use the value of the BUFFER attribute to set the buffer size around each point.
- Close the attribute table. Open the Layer Properties for the Idaho_Earthquakes layer. Go to the source tab and look at the projection of the Idaho_Earthquakes layer. It is important to note that the units for this projection are in meters since the buffer tool will assume this unit as well.
- Open the ArcToolbox and start the Buffer Tool. Populate the tool as shown on the right.
- Examine the new buffers on your map, and note that some points have a larger buffer than others.



6. Next we will create a multi-level buffer around the Idaho_Earthquakes layer. Go To Analysis Tools > Proximity > Multiple Ring Buffer.

7. Populate the Tool as shown on the right.

8. (Optional) Symbolize the buffer rings so that the ones closest to the earthquake have the darkest, most intense color as illustrated in the figure below.

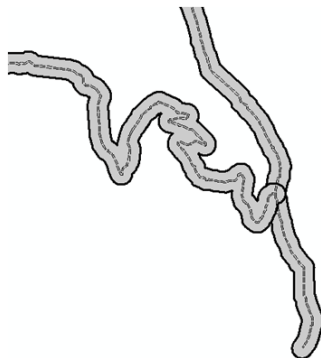



Exercise 3: Creating buffers along lines

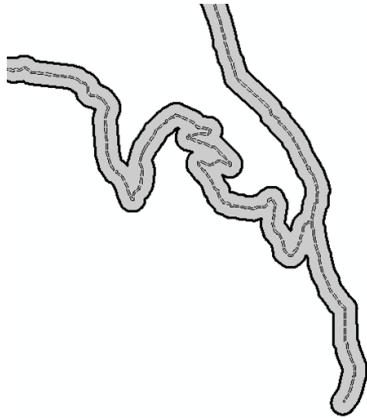
8.4: Creating Buffers

1. Start ArcMap and open a new map document. Add the Snowmobile_Trails shapefile from the Topic8_4 folder which shows a number of trails in Boundary County. In this exercise we will compare buffers that are created with and without using the dissolve option.

2. Start the buffer tool and populate as shown on the right. The resulting buffer is shown below.



3. Start the buffer tool again, this time you will create a dissolved buffer by completing the tool dialog box as shown on the right. The resulting buffer is shown below. What is the difference between the dissolved and not dissolved buffer?



1. Add "Snowmobile Trails"

2. Save output as "Snowmobile_Trails_300 Feet_Dissolved" in the Topic8_4 folder

3. Set to 300 Feet

4. Dissolve Type is ALL

5. Click OK