

ArcMap Geoprocessing: Creating Buffers and Erasing Features with ArcToolbox

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University GIS Geospatial Technology Training Program short course series, "Essential ArcGIS Tutorial Series." The task sheets are designed to provide quick, easy instructions for performing specific tasks in GIS.

Geoprocessing is a GIS operation that automates many data transformation tasks. A buffer creates a new spatial representation of a point, line or polygon that encloses the feature at a specified distance. The erase tool removes parts of features from other features. To use data from this task sheet, visit the NRGIS website and follow these links: under **State-wide Data** click **Administrative and Political Boundaries > Iowa_border**, and under **State-wide Data** click **Reaction > Trails**. For more information on the NRGIS website, consult task sheet **PM2082-09q** regarding Downloading from the Iowa DNR.

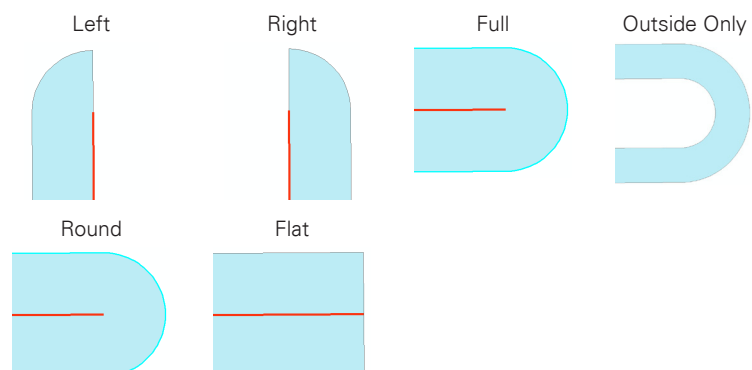
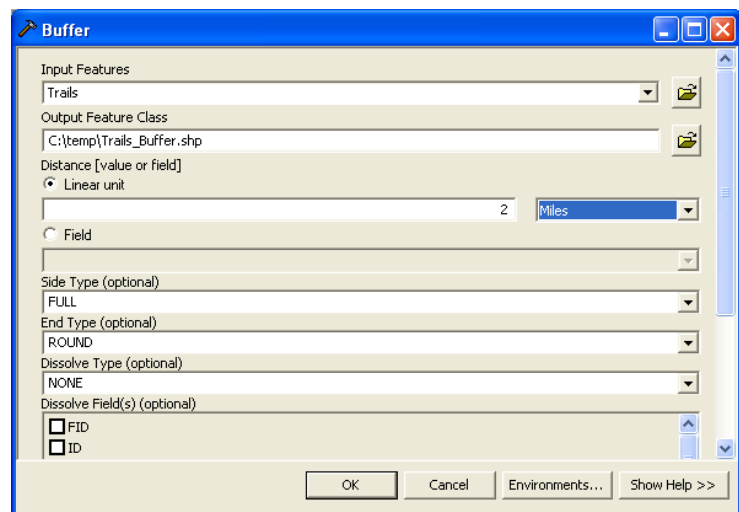
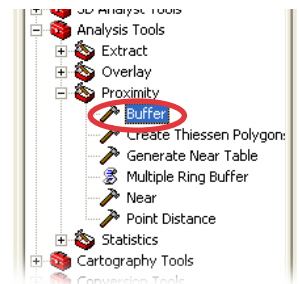
1. Open ArcMap

1. Open the **Trails** and **Iowa_border** shapefile.

2. Buffering

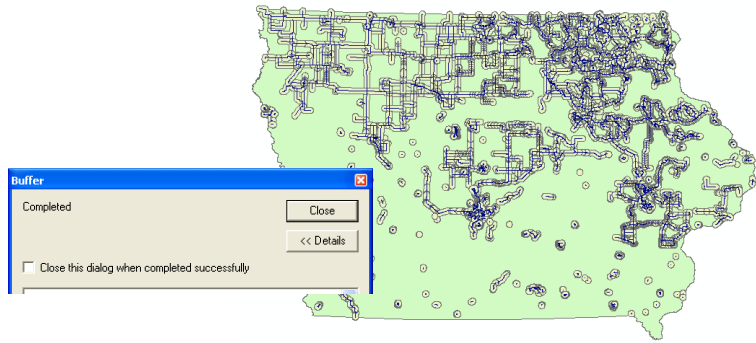
1. Click **Show/Hide ArcToolbox Window**.
2. Expand **Analysis Tools > Proximity** and double click **Buffer**.
3. Fill out the following fields:

- Under **Input Features**, select **Trails**.
- Select a destination to save the new shapefile by selecting the folder icon under **Output Feature Class**.
- Select **Linear unit** and in the box below type **2**, and select **Miles** in the drop-down menu beside the box. To buffer features of only a select attribute, click the radial button next to **Field** and select the attribute from the drop-down menu.
- From the **Dissolve Type (optional)** drop-down menu, the options are **None** (will not dissolve the buffers), **All** (each buffer will be merged into one feature), and **List** (merges buffers that have the same attributes that are selected in the **Dissolve Field(s) (optional)** window). Select **None**.
- **Slide Type (optional)** (ArcInfo license only) will create a buffer for the following options: **FULL** (on all sides), **LEFT** (left of the line), **RIGHT** (right of the line), **OUTSIDE_ONLY** (creates a buffer of the input feature, but excludes that feature's coverage in the output buffer polygon).



- **End Type (optional)** (ArcInfo license only) creates a buffer shape at the end of a line as a **FLAT** (square) or **ROUND** (half circle).

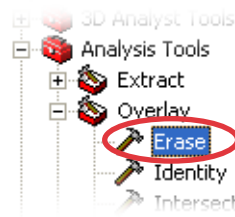
4. Click **OK** in the **Buffer** window.
5. Click **Close** in the **Buffer** window that appears after the process has completed.
6. Each feature from the **Trails** layer will have a buffer surrounding it.



3. Erase Tool (ArcInfo license only)

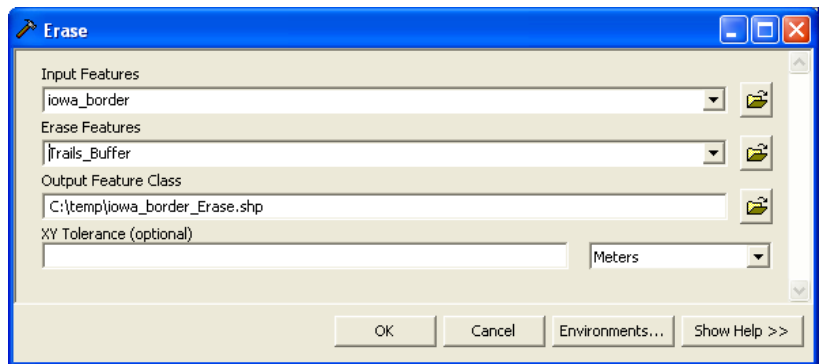
For those using the ArcEditor or ArcView license, the erase function is not available. A remedy to this is to use the **ET GeoWizard** add-on in ArcMap. For more information on that tool, see task sheet **PM2082-09q** regarding **Downloading and Exploring ET GeoWizards**.

2. Under the ArcToolbox, expand **Analysis Tools > Overlay** and double click **Erase**.

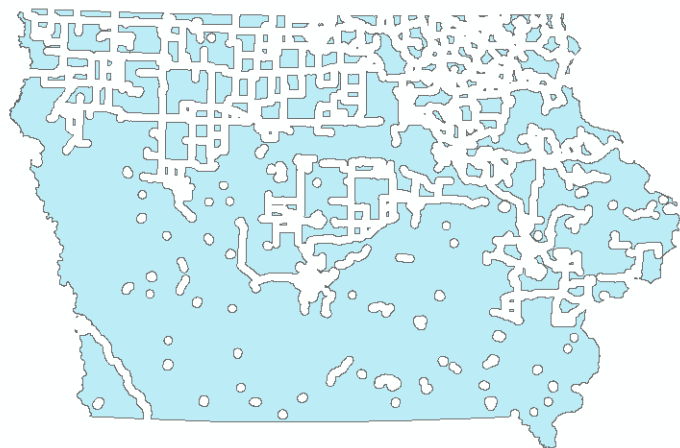


3. Fill out the following fields:

- Under **Input Features**, click the drop-down menu and select **iowa_border**.
- Under **Erase Features**, select the drop-down menu and select **Trails_Buffer**.
- Select a destination to save the new shapefile by selecting the folder icon under **Output Feature Class**.
- Click **OK**.



4. Click **Close** in the **Erase** window that appears when its process has completed.
5. Turn off the **Trails_Buffer** and **iowa_border** layers from the **Table of Contents**. The **Trails_Buffer** layer will be removed from the **iowa_border** layer.



Contacts

For more information about ArcMap Geoprocessing, contact:

Christopher J. Seeger, ASLA, GISP
cjseeger@iastate.edu or 515-294-3648.

For information about the ISU Extension Geospatial Technology Program, contact:

Alan Jensen, AICP
adjensen@iastate.edu or 515-294-2073.

This task sheet and more are available for free download at www.extension.iastate.edu/gis.

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