

Digitising heaths from BingMaps aerial photography

Open ArcMap 10.3.1 from the start menu **Start>All Programmes>ArcGIS>ArcMap 10.3.1**

Setting up ArcCatalog

To access most GIS data we need to use a programme embedded within ArcMap, called ArcCatalog. Click on the ArcCatalog symbol (ringed in red below).



Figure 1

We can dock this window out of the way by clicking and holding the top of the box and dragging it over to the right. Move the cursor over the blue arrow on the right side of the screen then release the left mouse button. ArcCatalog will now be docked.

Setup map projection

Right click on **Layers** in the table of contents and choose **Properties**. Open the Co-ordinate System tab and choose **Projected Coordinate Systems > National Grids > Europe > British National Grid**. Click Apply and OK. The units on the bottom right hand corner of the screen should now be showing in meters.

Adding Dorset and Hampshire outlines

Add in the county boundaries to your GIS by going to ArcCatalog and clicking on **Folder Connections** then **navigate to where you saved the file** and dragging across the DorsetHampshire.shp file into your GIS viewer. We can make this transparent to allow us to see aerial photography 'through' it by right clicking on the datafile in the table of contents and choosing **properties**. On the **Display** tab, set the transparent value to 50%

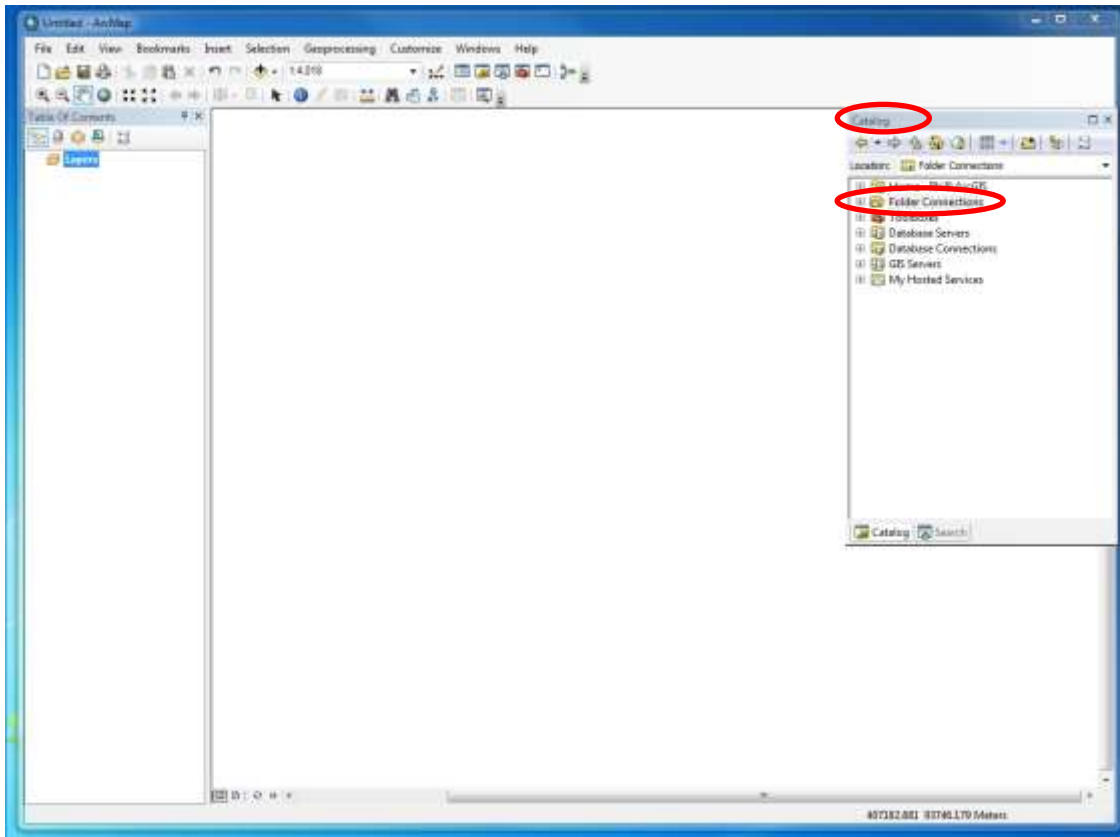
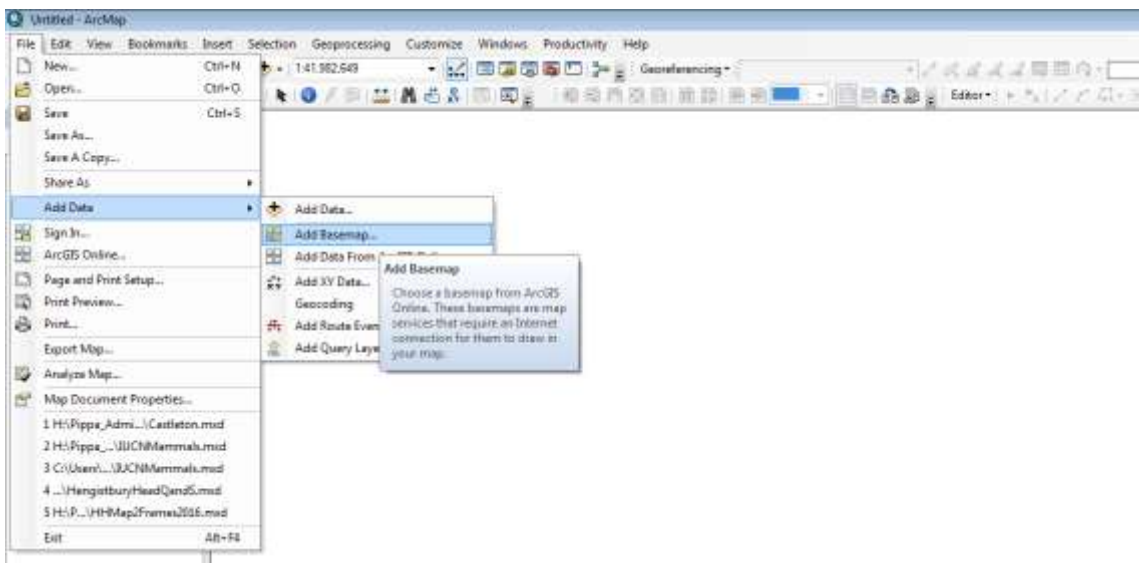


Figure 2

Adding Bing Maps data

Bing Maps data can be opened directly from within ArcMap and has aerial photography for the whole world! You can open it by going to File > Add Data > Add Basemap (see Figure below)



Choose **Imagery** and click Add. It should look like Figure 3.

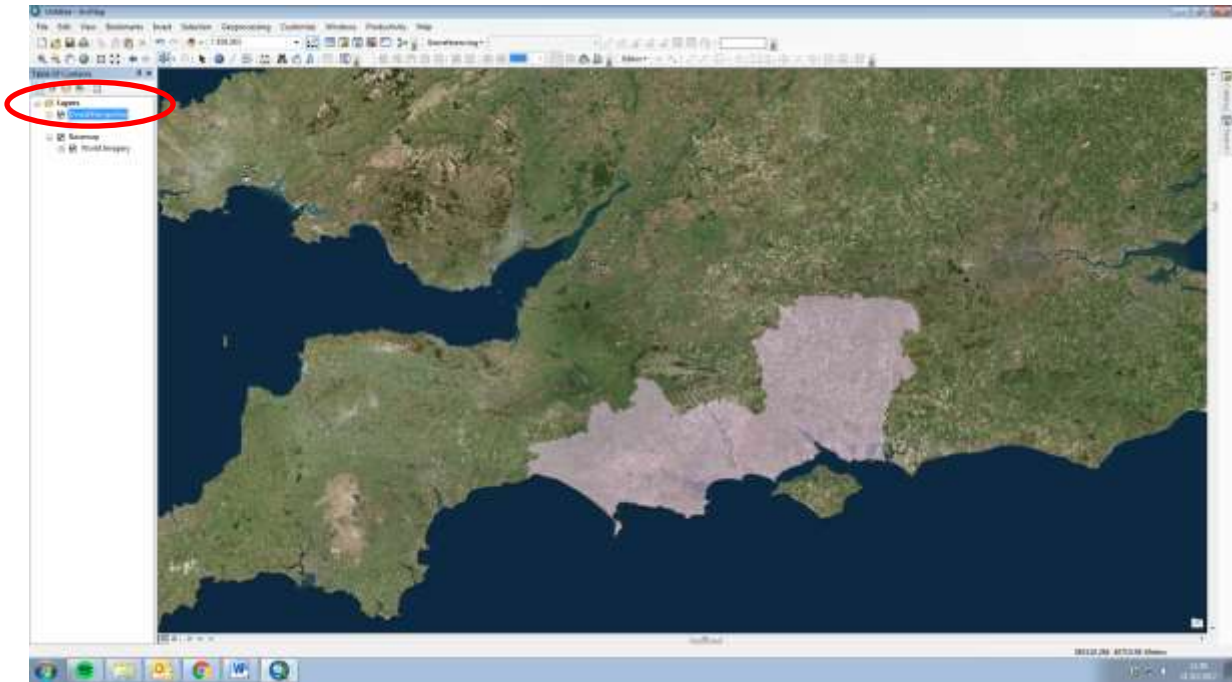
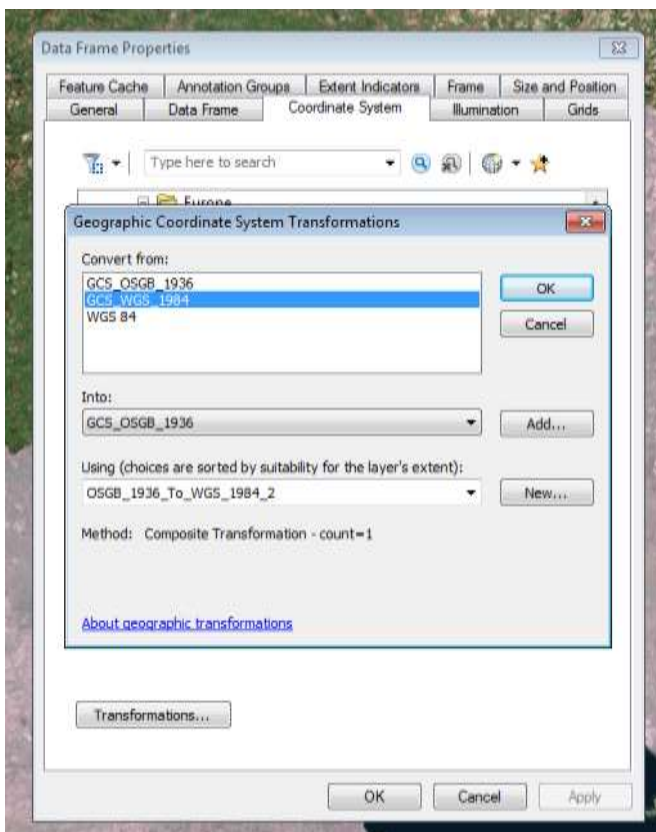


Figure 3

If the county outline does not line up with the aerial photo, you might need to apply a transformation. Right click on the Layers tab in the table of contents (ringed in red above) and choose **Properties**. On the **Co-ordinate System** tab click the button marked **Transformations**. Set up as shown here



Digitising Vector Polygons

You now need to create an empty polygon shapefile so that you can populate it with the heathland outlines data. You create new shapefiles in ArcCatalog.

In ArcCatalog right-click on the folder name (i.e. "SERT"). Select **New>Shapefile** to open a window (Figure 4).

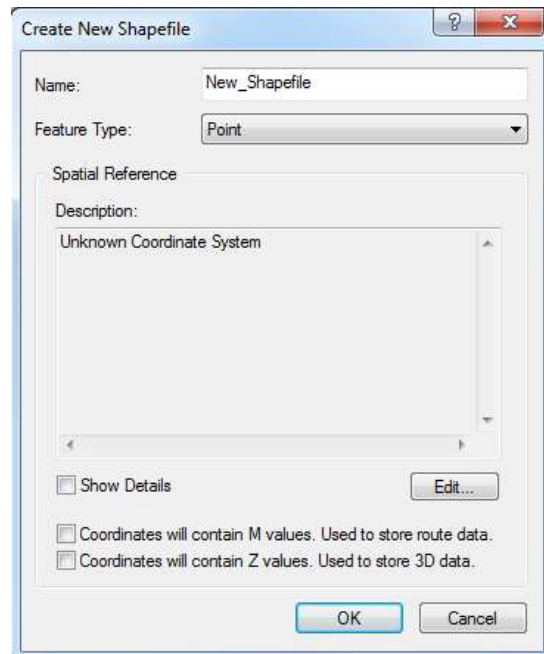


Figure 4

Type an appropriate filename (e.g. "Heaths"). Change the *Feature Type* to Polygon and then press **Edit** to set the *Spatial Reference* to *British National Grid* (navigate to **Projected Coordinate Systems>National Grids>Europe>British National Grid**). Finally press **OK** and your new, empty shapefile will be added into your *Table of Contents*.

Right click on the Heaths shapefile in the Table of Contents (on the left of the screen) and open the *Attribute Table*. You will notice that there are no rows of data entered (because the shapefile is empty) and there are only 3 fields (Figure 5).

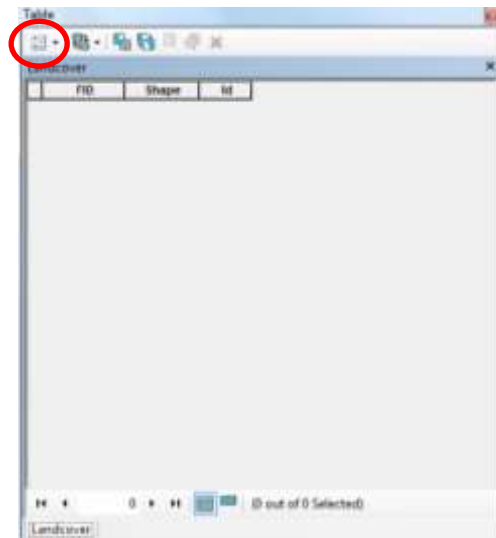


Figure 5

A new field needs to be added to the *Attribute Table* so the heath name can be entered. Press the *Table Options* button in the top left corner of the *Attribute Table* (ringed in Figure 5) and select **Add Field**. Type “landuse” in the *Name* box and change the *Type* to Text and press **OK**. The new field will have been added to the *Attribute Table*.

You will need the *Attribute Table* open during the digitisation process so you can add in the heath name: drag the table over to the right of your screen and dock it there.

To carry out digitising or change the shape of an existing shapefile the Editor toolbar needs to be loaded. Press **Customize>Toolbars>Editor** to load this tool bar. From the drop-down menu on the Editor toolbar select **Editor > Start Editing**. Choose the Heaths shapefile from the list and press **OK** (Figure 6).

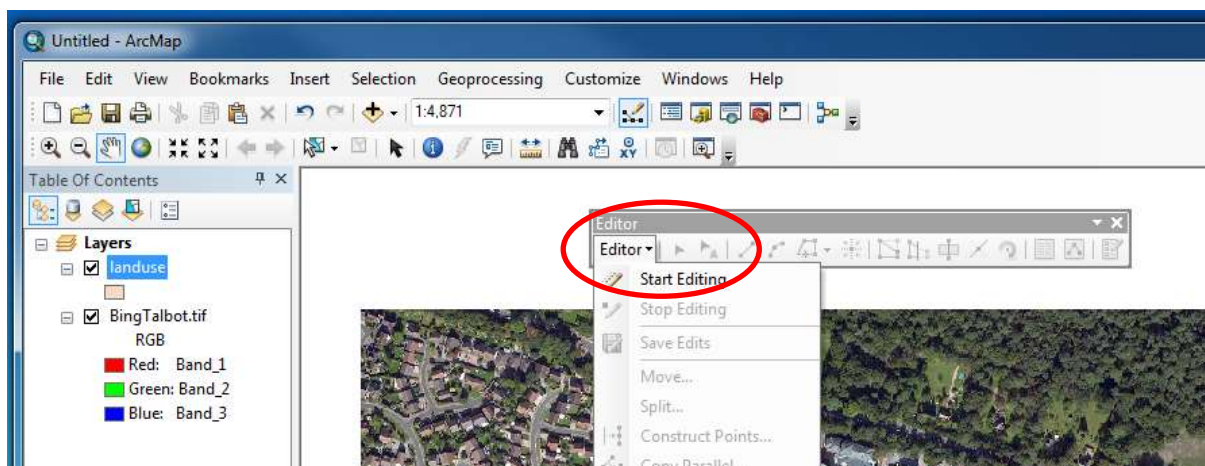


Figure 6

On the right of your screen an empty *Create Features* window should have appeared. This window allows you to control how the shapefile will look (and allows you to create templates if you are going to be creating many new features).

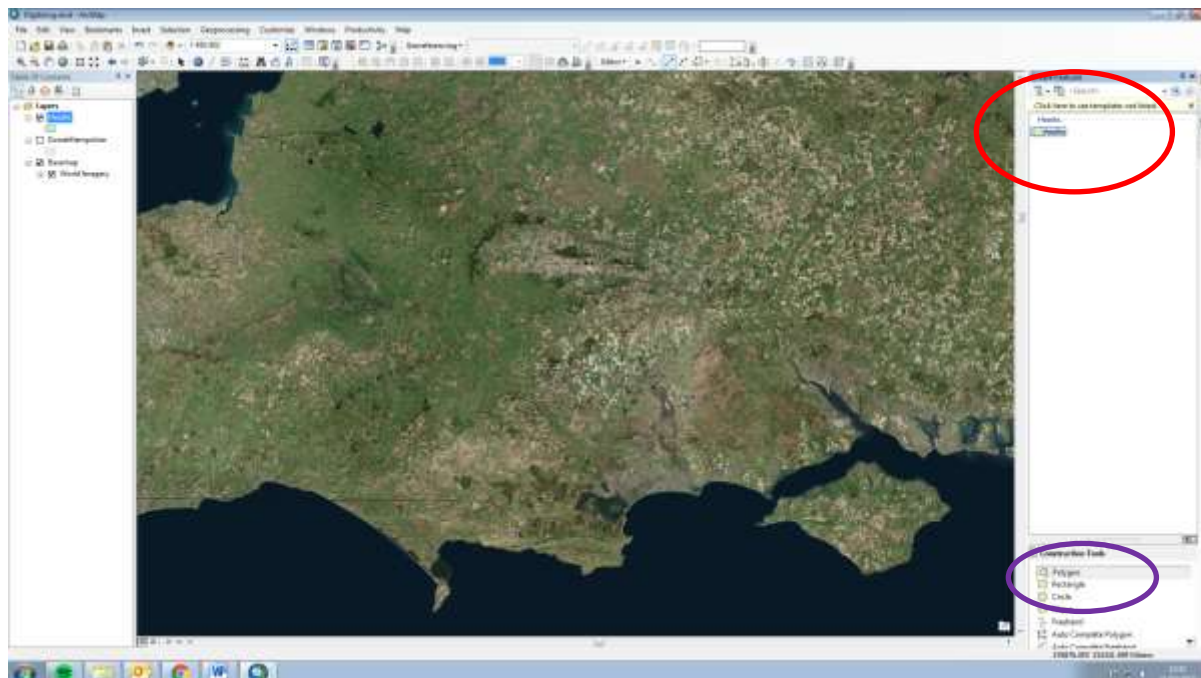


Figure 7

Now it's time to start digitising!

Zoom in to one of the heaths. Now, in the *Create Features* window, click on *Heaths* and make sure your *Construction Tool* is selected to be polygon (ringed in purple on Figure 7): your cursor should have changed to a cross-hair.

To begin digitising, left click at a point on the outline of the heath. Follow the edge around and note how a shape begins to form. The more points you click the greater the precision of the polygon. If you need to zoom in more or pan the map around, simply click on **zoom** or **pan** tool (ringed in Figure 8), then click back on *Heaths* in the *Create Features* window and resume your digitising.

- If you click in the wrong place, click **Edit** and **Undo**.
- To finish digitising, either double-click or right-click and press **Finish Sketch**.

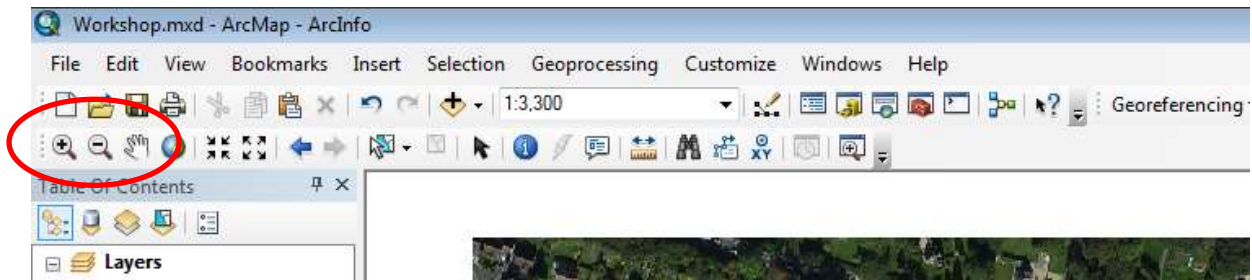


Figure 8

When you have finished digitising an area, it will be “selected” and outlined in blue (Figure 9). Open the *Attribute Table* and note that the table now has a row in it, also highlighted in blue. Under the *Heath Name* field, type in the name (e.g. Arne) and press enter. This will store the heath name attribute to the area you have just digitised.

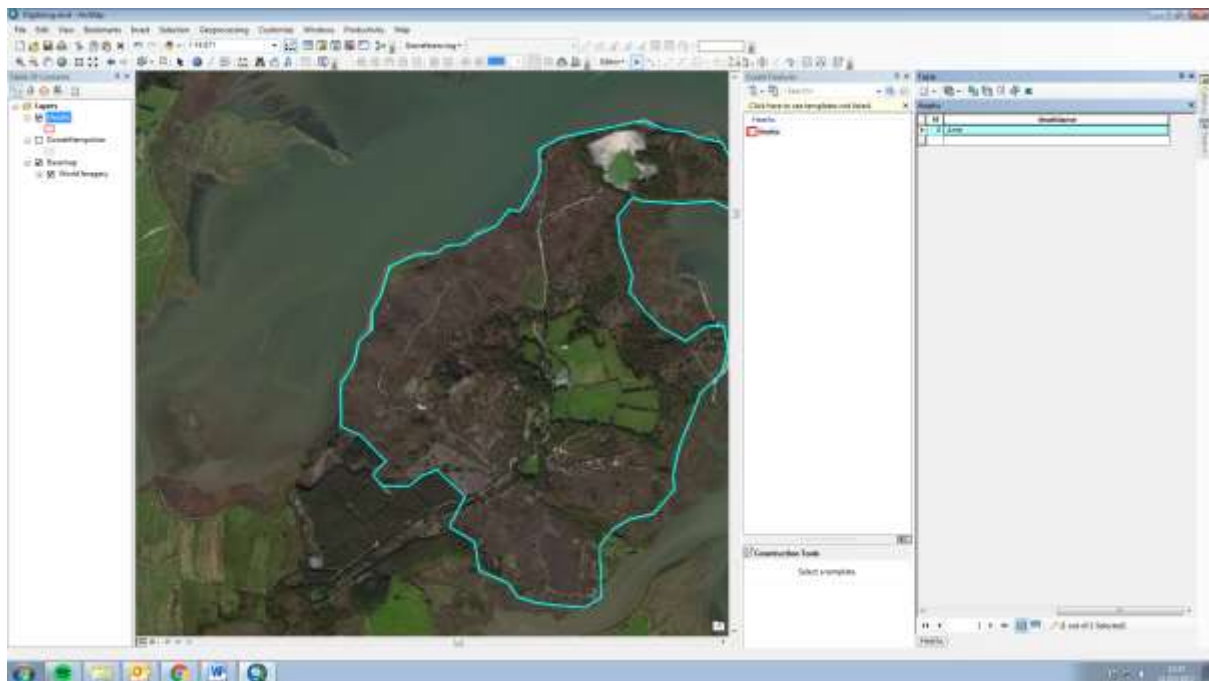


Figure 9

When you have finished digitising a heath, on the *Editor Toolbar* press the drop down menu and select **Save Edits**. Repeat the digitising process for each heath, then press **Stop Editing**.