

Mantra ArcGIS Data Management Practical – Exercise 3.  
Using layer files to store Cartographic styling in ArcGIS.

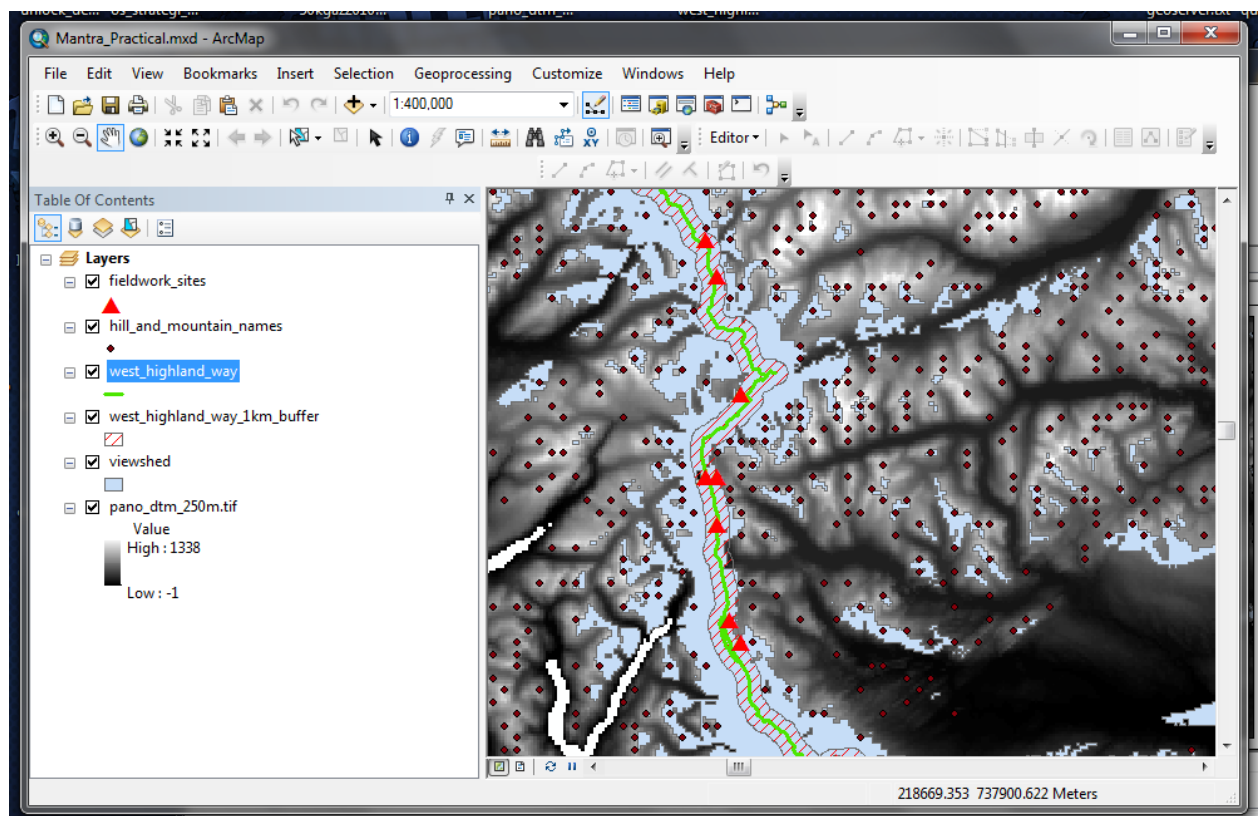
**This short exercise consists of a single part. In order to complete this exercise you need to have completed exercises 1 and 2.**

**Exercise 3: Using layer files to store Cartographic styling in ArcGIS.**

So far we've looked at setting up a geodatabase, loading data into the geodatabase and performing analysis on the data in the geodatabase. We now look at ways of saving the cartographic representations that we apply to our data within an ArcMap product. We do this because one of the primary outputs from GIS is likely to be the map.

If you've not already done so start ArcMap and open the **Mantra\_Practical.mxd** ArcMap project.

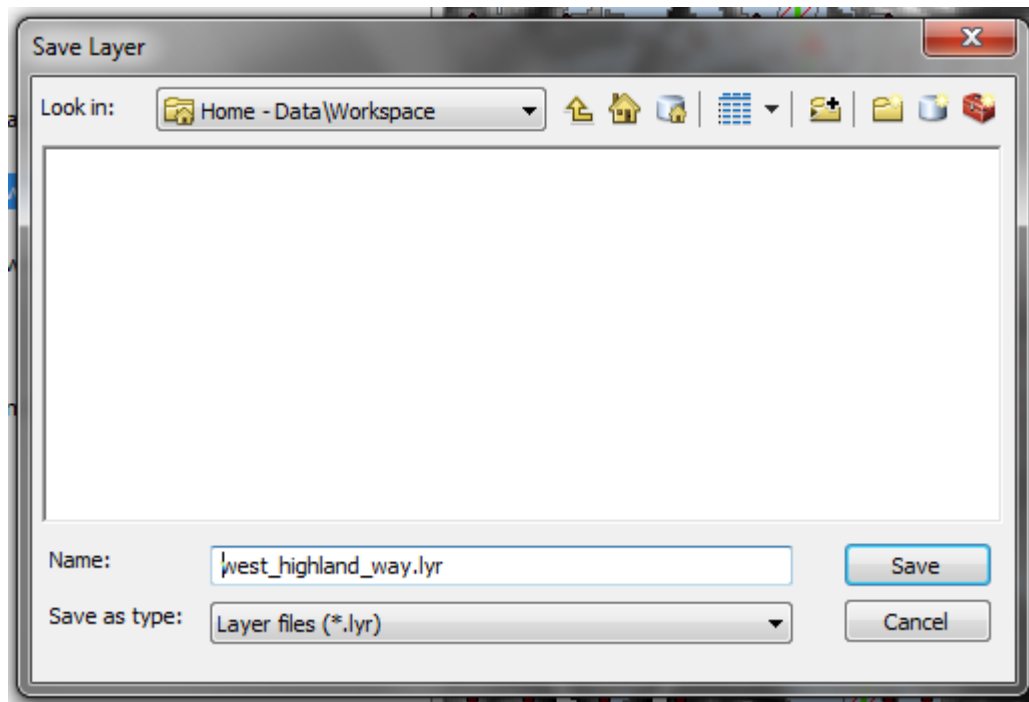
To demonstrate the principle we need to change the default style used to define the appearance of the **west\_highland\_way** line. To do this right-click on the **west\_highland\_way** item in the ArcMap layer list and choose **Properties...** On the Layer Properties dialogue click on the Symbology tab and change the colour and width of the line. When you have changed the colour and width of the line close the Layer Properties dialogue.



Right-click on the **west\_highland\_way** layer and select **Save As Layer File...**

Save the file as **west\_highland\_way.lyr** under the **Mantra/Data/Workspace** folder.

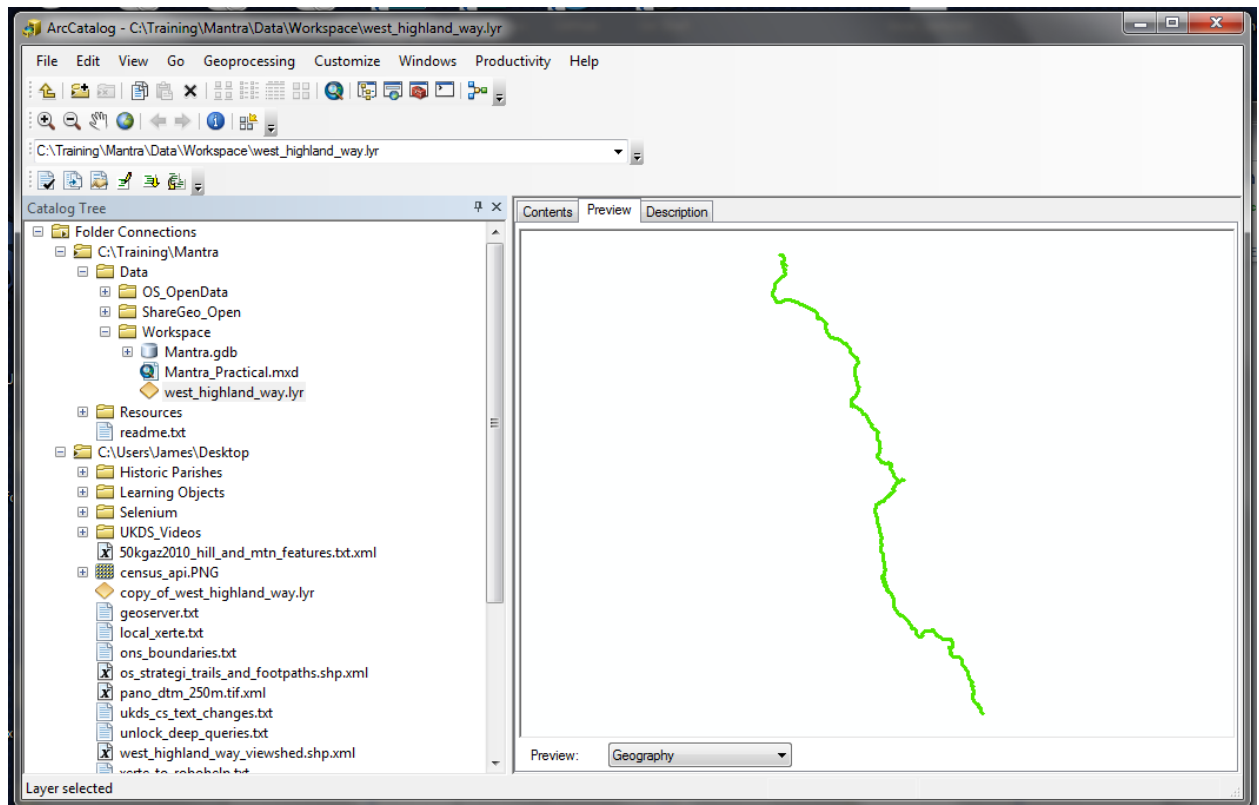
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An ArcGIS layer file is a means of keeping track of the data contained within a layer – both the source of that data (in this case the west\_highland\_way item in the geodatabase) and any cartographic styling or representation that has been applied to that file.

To see this, go to ArcCatalog. If you click on the west\_highland\_way.lyr item that we just created so that it is selected (to see this item you may need to refresh ArcCatalog by pressing F5) and then click the Preview tab the data will be displayed with the same style that you defined in ArcMap.

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If on the other hand we click on the data source of the layer file – the `west_highland_way` item in the geodatabase - and preview it, it will be shown with a much simpler representation.

Something to be aware of when using layer files is that because they always reference an underlying dataset the layer file may become broken if it loses reference to the underlying data. This could happen if it moved to a location different to that which was used when the layer file was originally created.

We can see this for ourselves.

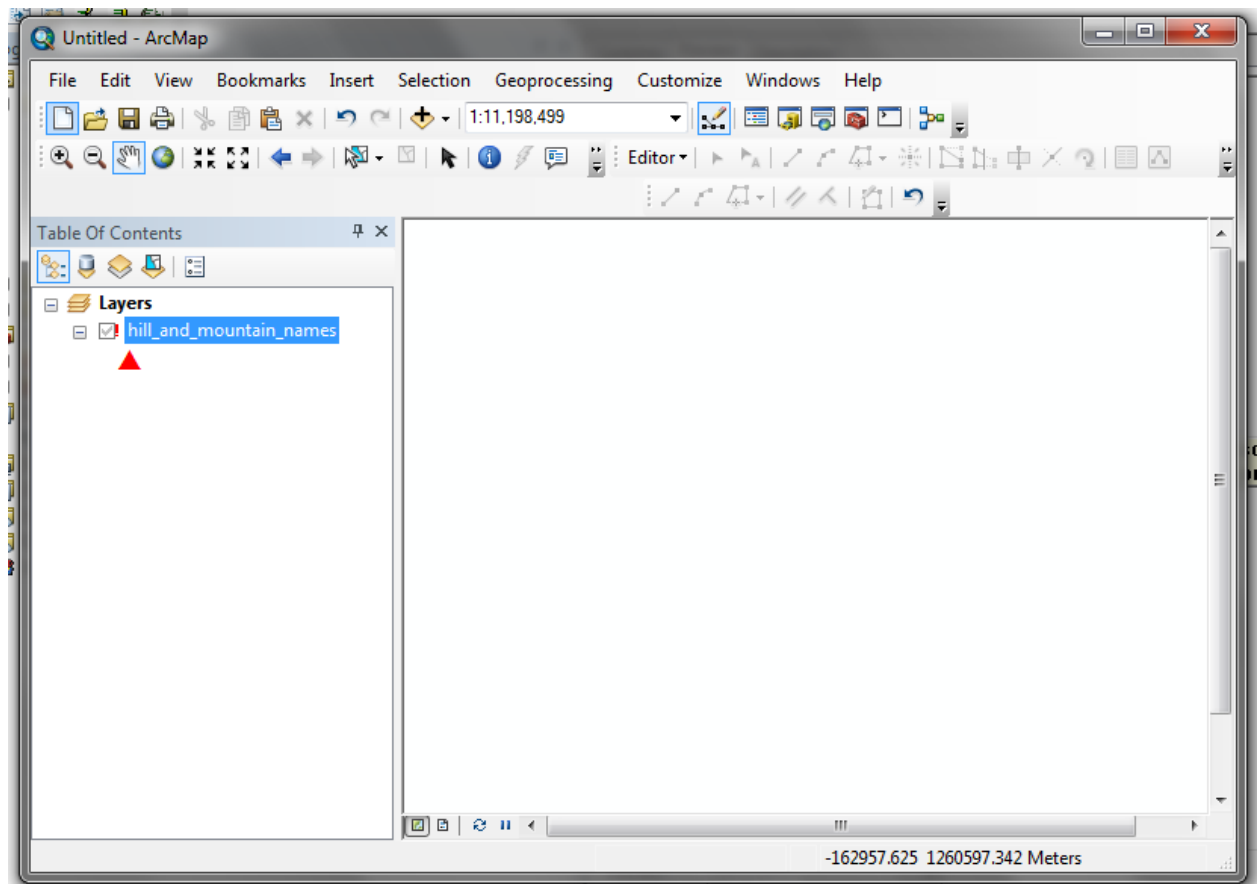
In the ArcCatalog Catalog tree, under `Mantra\Data\Resources\Layers` click on the ***hill\_and\_mountain\_names\_styled.lyr*** item so that it is selected.

If you click on the Preview tab ArcCatalog will display the message:

**Cannot display this layer. The data source referenced by this layer may be missing or corrupted.**

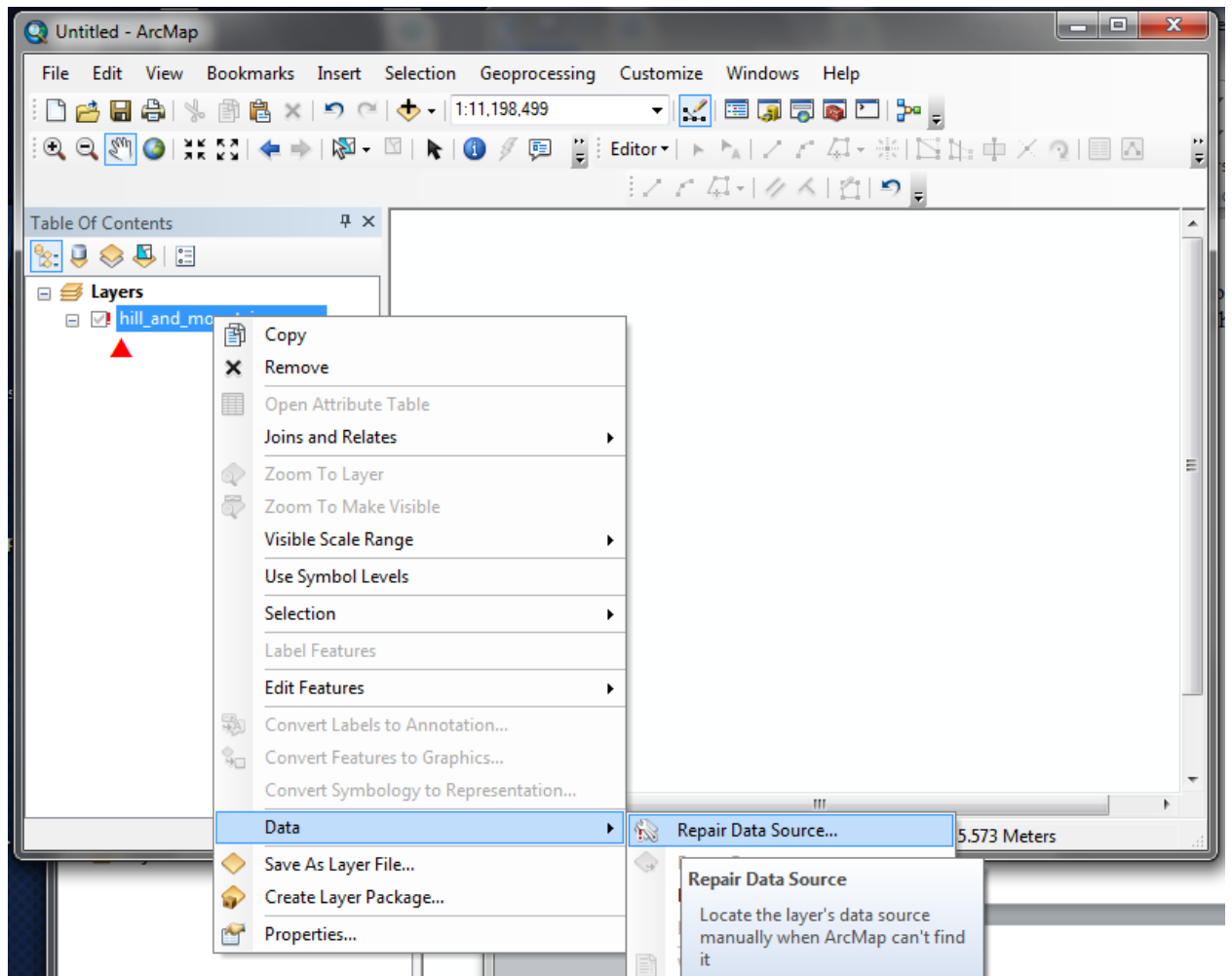
Similarly if you open a new ArcMap project and add the ***hill\_and\_mountain\_names\_styled.lyr*** to it, there will be a problem with the layer. In ArcMap, use File: New to create a new map. Right-click on Layers and choose Add Data. Then browse to the ***hill\_and\_mountain\_names\_styled.lyr***. ArcMap will add a new layer item to the ArcMap layer list but next to this will be shown a small red exclamation mark (!) beside the layer name indicating a problem with the layer.

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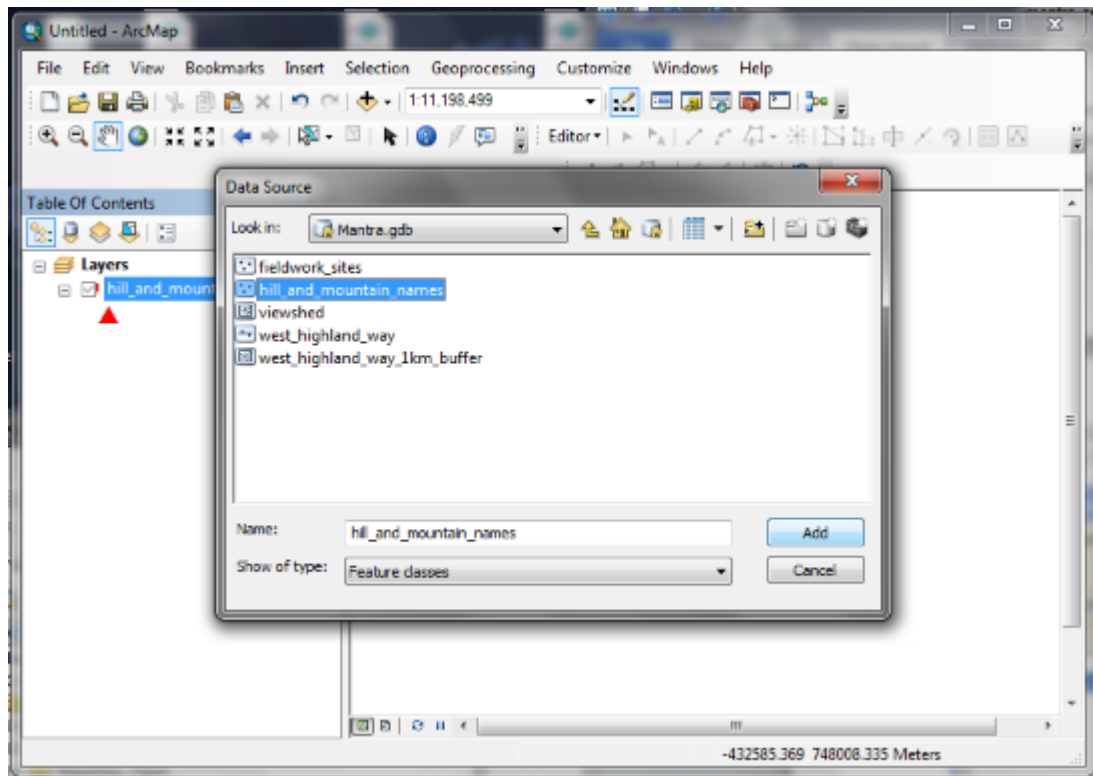
If this ever happens – it might if you are using someone else’s ArcMap project for example - you need to update the source of the data that the layer file is using (in this case we need to reference a dataset held in our geodatabase). To do this right-click on the item and select **Data > Repair Data Source...**

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You then navigate to the location of the data for this layer (in our case this will be the **hill\_and\_mountain\_names** item within our Mantra.gdb geodatabase) and set this as the data source for the layer by selecting it and clicking on the Add button.

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Having done this the layer now has data associated with it and ArcMap is able to display the source data features with the symbology defined in the layer file.