## **Viewing WEPP GIS Layers in ArcGIS**

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The following files are included in the zip file downloaded from the online WEPP GIS:

**Projection.txt** – The layers are in UTM coordinates. This file contains the UTM zone.

**Boundary.asc** – The watershed area. Cells with a value of 1 are contained in the watershed.

**Channels.asc** – The channel network as a grid. Cells with a value of 1 indicate a channel cell.

Landcov.asc – The landcover indices – not complete needs translation file.

Soilsmap.asc - The soil indices - not complete needs translation file.

**Subcatchments.asc** – The subcatchments in the watershed, a unique ID for each subcatchment and channel.

**Subcatchments.shp, subcatchments.dbf, subcatchments.shx** – The subcatchments as an ESRI shapefile, channels will also appear. The polygon ID's are included as a field. This information is the same as the subcatchments.asc file.

utmSlice.asc – The DEM file.

There are several WEPP output grids:

weppFLoss.asc - Results of flowpath runs, soil loss cell values are t/ha/year

**weppLoss.asc** – Results of representative hillslope watershed runs, soil loss cell values are t/ha/year. All cells in a subcatchment will have the same value.

**weppSediment.asc** - Results of representative hillslope watershed runs, sediment leaving. All cells in a subcatchment will have the same value. t/ha/year.

**weppRunoff.asc** - Results of representative hillslope watershed runs, runoff cell values are mm/year. All cells in a subcatchment will have the same value.

The other files are related to WEPP simulations but are not yet compatible with the desktop version of the WEPP interface.

To view the files in ArcGIS 10 the following steps should be done.

Extract the contents of the downloaded WEPP Zip file *weppproj.zip* to a subdirectory on your machine.

| Add Data      |                    |    |     |                |       |       | >   |
|---------------|--------------------|----|-----|----------------|-------|-------|-----|
| Look in: 📴    | wepp-shp-test      | •  | 仓 🟠 | <b>a</b>   111 | •   🖴 | 1     | 6,  |
| boundary.as   | c                  |    |     |                |       |       |     |
| channels.asc  | 1                  |    |     |                |       |       |     |
| landcov.asc   |                    |    |     |                |       |       |     |
| projection. b | ct                 |    |     |                |       |       |     |
| soilsmap.asc  |                    |    |     |                |       |       |     |
| subcatchmer   | nts.asc            |    |     |                |       |       |     |
| 2 subcatchmer | nts.shp            |    |     |                |       |       |     |
| utmSlice.asc  |                    |    |     |                |       |       |     |
|               |                    |    |     |                |       |       |     |
|               |                    |    |     |                |       |       |     |
| ~             |                    |    |     |                |       |       |     |
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|               | Juatasets and Laye | rs |     |                | Ľ.    | Carle |     |
|               |                    |    |     |                |       |       |     |

Click the Add Layer button and load the base DEM file *utmSlice.asc* 

The files do not have projections associated with them so ArcGIS will display this warning, click the OK button. A projection will be defined in the next step.

| 🔥 Unknown Spatial Reference   | ? ×  |
|---|--|
| The following data sources you added are missing<br>information. This data can be drawn in ArcMap, bu | spatial reference<br>ut cannot be projected: |
| utmSlice.asc  | <u>_</u>                                     |
|   |  |
|   | ок   |

Open the ArcToolbox and navigate to the Define Projection utility and then double click to start.



When the Define Projection utility opens select the utmSlice.asc as the input dataset. Next to the 'Coordinate System' click the icon.

| Input Dataset or Feat | ure Class |     | <u> </u>      | Input Dataset or                                      |  |
|-----------------------|-----------|-----|---------------|---|--|
| utmSlice.asc          |           | I 🔁 | Feature Class |   |  |
| Unknown               |           |     |               | Dataset or feature class<br>whose projection is to be |  |
|                       |           |     |               | denned.   |  |
|                       |           |     |               | denned.   |  |

In the next window click the 'Select' button to choose the coordinate system. The files are in the UTM projection. The projection requires a zone number, the file in the download *projection.txt* contains the zone number to use.

For example, here are the contents of the projection.txt file:

## UTM Zone: 16

In this example when selecting the projection look for 16N.

| atial Referenc   | e Properties  | <u>? ×</u> |
|------------------|---|------------|
| Y Coordinate Sy  | vstem Z Coordinate System   | 1          |
| Name:            | Jnknown   |            |
| Details:         |   |            |
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|                  |   |            |
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|                  |   |            |
|                  |   | -          |
|                  | 1   |            |
| Select           | Select a predefined coordinate system.  |            |
| Import           | domains from an existing geodataset (e.g.,<br>feature dataset, feature dass, raster). |            |
| <u>N</u> ew •    | Create a new coordinate system.   |            |
| Modify           | Edit the properties of the currently selected coordinate system.                      |            |
|                  | Transma vasnes e avenue   |            |
| Clear            | Sets the coordinate system to Unknown.  |            |
| Clear<br>Save As | Sets the coordinate system to Unknown.  |            |
| Clear<br>Save As | Sets the coordinate system to Unknown. Save the coordinate system to a file.          |            |

| Browse for Coord | linate Syster  | n        |          |      |          |        |      |          | x     |
|------------------|----------------|----------|----------|------|----------|--------|------|----------|-------|
| Look in:         | D 1983         |          | -        | 仓    | <b>a</b> | •      | 21   | 60       | 6     |
| NAD 1983 UTM     | Zone 10N.prj   | NAD      | 1983 UTM | Zone | 19N.prj  | NAD    | 1983 | JTM Zone | 58N.J |
| NAD 1983 UTM     | Zone 11N.prj   | () NAD   | 1983 UTM | Zone | 1N.prj   | () NAD | 1983 | JTM Zone | 59N.( |
| NAD 1983 UTM     | Zone 12N.prj   | NAD      | 1983 UTM | Zone | 20N.prj  | NAD    | 1983 | JTM Zone | 5N.pr |
| NAD 1983 UTM     | Zone 13N.prj   | NAD      | 1983 UTM | Zone | 21N.prj  | NAD    | 1983 | JTM Zone | 60N.1 |
| NAD 1983 UTM     | Zone 14N.prj   | NAD      | 1983 UTM | Zone | 22N.prj  | NAD    | 1983 | JTM Zone | 6N.pr |
| NAD 1983 UTM     | Zone 15N.prj   | NAD      | 1983 UTM | Zone | 23N.prj  | NAD    | 1983 | JTM Zone | 7N.pr |
| NAD 1983 UTM     | Zone 16N.prj   | NAD      | 1983 UTM | Zone | 2N.prj   | NAD    | 1983 | JTM Zone | 8N.pi |
| NAD 1983 UTM     | Zone 17N.prj   | NAD      | 1983 UTM | Zone | 3N.prj   | NAD    | 1983 | JTM Zone | 9N.pi |
| () NAD 1983 UTM  | Zone 18N.prj   | NAD      | 1983 UTM | Zone | 4N.prj   | 570    |      |          |       |
| •                |                |          |          |      |          |        |      |          | •     |
| Name:            | VAD 1983 UTM   | Zone 16N | l.prj    |      |          |        |      | Add      |       |
| Show of type:    | Coordinate Sys | tems     |          |      |          | -      | Ī    | Cance    |       |
|                  |                |          |          |      |          |        |      |          |       |

Projected Coordinate Systems -> UTM -> NAD 1983 -> 'then select your zone' and click the 'Add' button. And click 'Apply' and 'OK' to close the Define Projection utility.

The DEM might not have a good color scheme to change it double click on utmSLice.asc in the left window and then choose the 'Symbology' tab. Select the 'Classified' option and select the number of classes from the dropdown and a color ramp. Finally, click 'Apply' and then 'OK'.

| ow:<br>igue Values                        | Draw ras               | ster grouping values into cla                          | sses  | Import   |  |  |  |
|---|------------------------|--|---|----------|--|--|--|
| Classified<br>Stretched<br>Discrete Color | Fields<br>Value        | Fields       Value <value>       Normalization</value> |   |          |  |  |  |
|   | Classific<br>Color Ram | ation<br>Natural Breaks (Jenks)                        | Classes 25                                      | Classify |  |  |  |
|   | Symbol                 | Range  | Label   |          |  |  |  |
|   |                        | 0  | 0   |          |  |  |  |
|   |                        | 0 - 192.5291892  | 0 - 192.5291892                                 |          |  |  |  |
|   |                        | 192.5291892 - 195.8486579                              | 192.5291893 - 195.8486579                       |          |  |  |  |
|   |                        | 195.8486579 - 199.1681267                              | 195.848658 - 199.1681267                        |          |  |  |  |
|   |                        | 199.1681267 - 202.4875955                              | 1681267 - 202.4875955 199.1681268 - 202.4875955 |          |  |  |  |
| -   |                        | 202.4875955 - 206.9135539                              | 202.4875956 - 206.9135539                       |          |  |  |  |
|   |                        | 206.9135539 - 211.3395122                              | 206.913554 - 211.3395122                        |          |  |  |  |
| 1 2                                       |                        | dana haraka sata sali                                  | 10 C  |          |  |  |  |

The next step is to load the channel network, this is also an ascii grid file. Click the 'Add Layer' button and then select the *channels.asc* file.

After the channels are loaded double click on the name in the left window and change the symbology to unique values. All channels cells contain a 1.

| over Properties   | at Disates Symbology   Date   |   | <u>?</u> ]   |
|---|---|---|--------------|
| General   Source   Exte<br>how:<br>Unique Values<br>Classified<br>Stretched<br>Discrete Color | Value Field   | r to each value                         | Import       |
|   | Symbol <value> <all other="" values=""> <heading>       1</heading></all></value> | Label<br><all other="" values=""></all> | 2223         |
|   | Add All Values  | Add Values                              | Remove       |
|   | C <u>o</u> lormap ~   | Display Not                             | Data as      |
|   |   | OK                                      | Cancel Apply |

After loading the channels the layers look like this:



Next add the *subcatchments.shp* file. This is an ESRI shapefile file the subcatchments in the watershed and also the channels. Since all the processing is done on a grid with 30m cells the outlines have a very jagged appearance.



The first chage will be label the subcatchments. Double click on the subcatchments name in the left window and then select the 'Label' tab and then check 'Label Features in this layer' and click 'Apply' and 'OK'.

| ayer Properties      |                         |                    |                   |                  |                | ?:         |
|----------------------|-------------------------|--------------------|-------------------|------------------|----------------|------------|
| General Source       | Selection Display       | ymbology Fields De | efinition Query l | Labels Joins &   | Relates   Time | HTML Popup |
| Label features i     | in this layer           |                    |                   |                  |                |            |
| Method:              | Label all the featur    | es the same way.   |                   | •                |                |            |
| All features will be | e labeled using the opt | ons specified.     |                   |                  |                |            |
| Text String          | DN                      |                    |                   | Expre            | ssion          |            |
| Text Symbol —        |                         |                    |                   | - 当162.          |                |            |
|                      | AaBbYyZz                | Arial              |                   | 8 💌<br>Symbol    |                |            |
| Other Options        |                         |                    | Pre-define        | ed Label Style - |                |            |
| Placemen             | nt Properties           | Scale Range        |                   | Label Styles.    |                |            |
|                      |                         |                    |                   |                  |                |            |
|                      |                         |                    |                   |                  |                |            |
|                      |                         |                    |                   |                  |                |            |
|                      |                         |                    |                   |                  |                |            |
|                      |                         |                    |                   | [                | 1              | 1          |
|                      |                         |                    |                   | ок               | Cancel         | Apply      |

To change the colors click the Symbology tab and then 'Unique Values' and then click the 'Add All Values' button and then 'Apply' and 'OK'.

| Features<br>Categories<br>Unique values | Value Fit | eld                            | Color Rar   | np           |           |  |
|---|-----------|--------------------------------|---|--------------|-----------|--|
| Match to symbols in a                   | Symbol    | Value                          | Label   | Count        |           |  |
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| Aultiple Attributes                     |           | <heading></heading>            | DN  | 135          |           |  |
|   |           | 22                             | 22  | 1            |           |  |
|   |           | 23                             | 23  | 1            | 1         |  |
|   | -         | 24                             | 24  | 4            |           |  |
|   |           | 31                             | 31  | 1            | Ŧ         |  |
|   |           | 34                             | 34  | 1            |           |  |
|   |           | 42                             | 42  | 2            |           |  |
|   |           | 43                             | 45  | 1            |           |  |
|   |           | E1                             | 51  | -            | -         |  |
| 3 2                                     | Add All V | /alues Add Values              | Bemove  | Remove All A | dvanced + |  |
|   |           |                                |   |              |           |  |
|   |           |                                |   |              |           |  |
|   |           |                                |   |              |           |  |
|   |           |                                |   |              |           |  |

If the channels layer is the first layer in the left window it is easier to see all the channels because they are displayed in the same color.

