

Co-occurring Resource Inventory (CoRI) Compiler Tutorial

CoRI Compiler Requirements:

- This CoRI compiler is compatible with ESRI ArcGIS version 9.3, which must be installed on the same computer
- Data sets must be in vector format and can be in either shapefile or geodatabase format.
- All data sets must be assigned the same projection and at least partially cover the same geographic area.
- The sum of all percent weights must be equal to 100.

Installing the CoRI Compiler onto your computer:


To install the co-occurring resource inventory compiler on your computer, copy and paste the folder labeled “CoRI” onto the root “C” directory of your computer.

NOTE: To ensure the continued reliability of the CoRI compiler, please follow these suggestions:

- It is best not to use the CoRI folder as a repository for any GIS data sets that you may be using as inputs (or any other data sets).
- Make sure that you do not remove or otherwise alter any files or folders within the CoRI folder.

Opening the CoRI compiler in ArcGIS 9.3:

1. Start a new project or open an existing project in ArcGIS.
2. Make sure that the ArcToolbox window is open.
3. In the ArcToolbox window, right-click on the “ArcToolbox” header.
4. In the drop-down menu that appears, navigate to and left-click on the “Add Toolbox...” option.

5. In the “Add Toolbox” window, navigate to and open the CoRI folder. Single-left-click on the red toolbox icon labeled “Co-occurring Resource Inventory”. (Note: if you double-click inadvertently on the icon, you can backtrack by clicking the “up one level” button  in the toolbar of the “Add Toolbox” window.)
6. Click on the “Open” button. The “Add Toolbox” window will disappear and you should now see a toolbox with the label “Co-occurring Resource Inventory” added to the other toolboxes in the ArcToolbox window.



NOTE: it is recommended that you save your ArcGIS project at this point. When the saved project is reopened later, the Co-occurring Resource Inventory toolbox will appear automatically with the rest of the toolboxes in the ArcToolbox window (make sure that the CoRI folder on the C drive is not deleted).

7. To open the Co-occurring Resource Inventory toolbox, single left-click on the “plus” sign on the left of the “Co-occurring Resource Inventory” toolbox icon, or double-click on the toolbox icon itself.
8. Double-click on the script icon labeled “Co-occurring Resource Inventory Compiler”. This is the upper of the two scripts in the toolbox. The Co-occurring Resource Inventory Compiler window will open in ArcGIS.



Some Things to Keep In Mind...

You are now ready to use the Co-occurring Resource Inventory Compiler. To ensure the ease of use of the compiler and avoid running into difficulty, here are some things to keep in mind:

- Prior to using the compiler it is a good idea to check and see if there is adequate space available on the hard drive on your computer. In addition to the input data sets and output data set, the compiler generates a number of temporary data sets in the process of performing a co-occurring resource inventory analysis. Depending on the size and number of input data sets as well as the assigned pixel resolution, the compiler is capable of potentially generating a large amount of data while it is processing the analysis. In order to ensure that there is adequate disk space to run the compiler it is recommended that you have a minimum of 2 gigabytes of available disk space.
- Entering a GIS data set into any data entry window is optional. GIS data sets do not need to be entered in any particular order.
- Entering a data set selection query is optional. These queries are intended to allow you to select only the desired features within an input data set that you would like to include in the analysis. If no query is entered, all features of the input data set are included in the analysis.
- A co-occurring resource inventory analysis can be run in this compiler with as many as ten or as few as two input data sets*. Theoretically the compiler will run with only one input data set; however the output data set would not count as a co-occurring resource inventory analysis. (* Note: though the hydrological features input section allows for two inputs of hydrological features data, the section counts as only one input).
- **IMPORTANT:** when entering input data sets or queries, do not attempt to do so by typing a file path or query command in the corresponding window. To enter an input data set or query, click on the folder icon  or query button  located the right of the corresponding window. Clicking on a folder icon button will open a window that allows you to navigate to the folder where the desired input data set is located. Clicking on a query button will open a standard ArcGIS query window.
- Unlike input data sets or queries, percent weight or buffer width value entries must be entered by typing the numeric value directly into the corresponding window.

Setting Up and Running the CoRI Compiler:

1. Enter a data set into the window labeled “Geographic Extents Data Set”. This data set serves the double purpose of defining the geographic borders of the co-occurring resource analysis and ensuring that all pixels in all raster data sets involved in the analysis are aligned with one another. The data set used in this module must be a single feature polygon-based entity. Examples of data sets used in this module include the polygon version of a town boundary or a polygon covering the area of the town plus a one-mile buffer zone surrounding the town.
2. The window labeled “Pixel Size” allows you to set the resolution of all raster data sets involved in the analysis by typing the desired value in the window. The default value is 25 units of measurement. Typing in a smaller number (e.g. the value “10” has been used commonly in co-occurring resource inventories) will result in a smoother rendering of the output data set, the trade-off being longer processing time, larger temporary data sets, and a larger output data set.
3. The first three sections for data set entry allow for the analysis of a data set itself, along with areas in a given proximity to the geographic extents of that data set.

- a. **Riparian Buffer Zone Input Section:** the first section for data set entry is intended specifically for the evaluation of riparian buffer zones, which can be generated by both line and polygon-based hydrological features data. As mentioned previously entering input data sets or queries is optional, and if your analysis does not include hydrological features you may leave this section blank. Shown below is an example of how this section can be set:

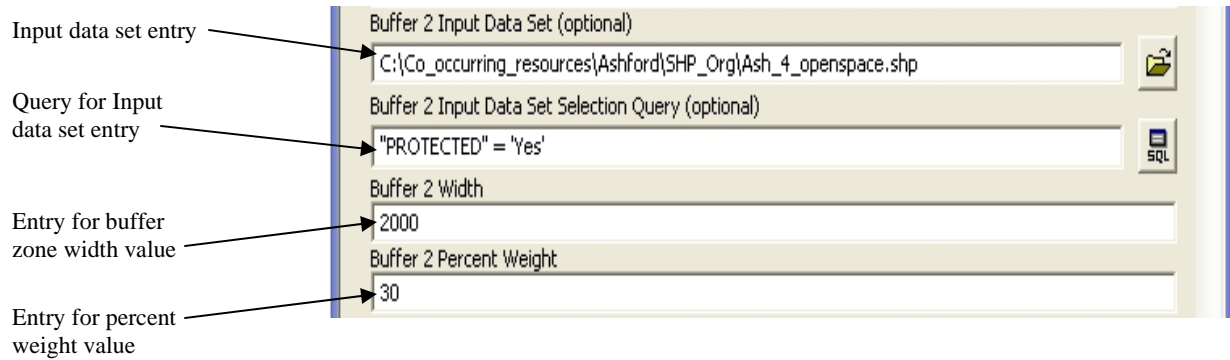
Note: Make sure that you enter the line and polygon – based hydrological features data sets in the appropriate respective data entry windows.

The screenshot shows the 'Riparian Buffer Zone Input' dialog box with several fields and buttons. Annotations on the left point to specific fields:

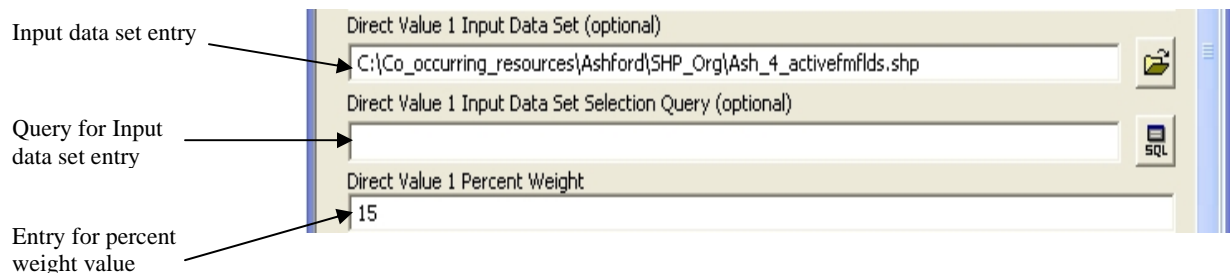
- Line-based Hydrological Features data set entry:** Points to the 'Riparian Buffer Zone Input: Line Hydrological Features Data Set (optional)' field, which contains the path 'C:\Co_occurring_resources\Ashford\SHP_Org\Ash_2_hydro_line.shp'.
- Query for line-based Hydrological Features data set:** Points to the 'Line Hydrological Features Data Set Selection Query (optional)' field, which contains the query '"LEGEND" = 'Intermittent Stream' OR "LEGEND" = 'Stream'.
- Polygon-based Hydrological Features data set entry:** Points to the 'Riparian Buffer Zone Input: Polygon Hydrological Features Data Set (optional)' field, which contains the path 'C:\Co_occurring_resources\Ashford\SHP_Org\Ash_2_hydro_poly.shp'.
- Query for polygon-based Hydrological Features data set:** Points to the 'Polygon Hydrological Features Data Set Selection Query (optional)' field, which contains the query '"LEGEND" <> 'Marsh or Swamp'.
- Entry for riparian buffer zone width value:** Points to the 'Riparian Buffer Zone Width' field, which contains the value '300'.
- Entry for riparian buffer zone percent weight value:** Points to the 'Riparian Buffer Zone Percent Weight' field, which contains the value '25'.

Buttons for file selection (folder icon) and SQL query execution (SQL icon) are visible on the right side of the dialog box.

- b. **Buffer 2 and Buffer 3 Input Sections:** the second and third input sections from the top are intended for single-input files. Each section has a window for entering an input data set, a query, a buffer width value, and a percent weight value. Shown below is an example of how one of these sections can be set:



4. The last seven sections (Direct Value sections 1 through 7) for data set entry allow for the analysis of data sets in terms of direct value. Each section has a window for entering an input data set, a query and a percent weight value. Shown below is an example of how one of these sections can be set (Note: in this example no query has been entered. Therefore all features in the input data set will be included in the analysis):



5. Specify a name and folder location for the output data set by clicking on the folder to the right of the window labeled “Output Data Set”. A window will open that allows you to set the name and location of the output file.

6. When you have entered all data, scroll through the compiler window to double-check that you have entered all of your data correctly. Remember, inadvertently entering a wrong data set or an erroneous numeric value in a value window can alter the results of your analysis significantly. Also, now is the time to make sure that the sum of all percent weights is equal to 100.
7. When you are satisfied that all of your entries are set as desired, start the compiler by clicking on the “OK” button on the bottom of the compiler window. A progress window will open, initially showing an encoded dialog of the data that you entered. As the compiler progresses with the analysis the progress window will indicate when sections that you entered data sets into have been processed. Once the compiler has completed the analysis, it will indicate that the analysis has run successfully.

Note: if the compiler stops running and an error window appears, typically it is due to one of two potential errors in the data entry.

Potential Error 1: Entering data sets in the geographic extents Data Set and Output Data Set windows is required. If either is omitted, the compiler will stop running and a warning window will open that indicates that a required entry is missing. If that happens, click the “OK” button in the warning window. Doing so will return you to the compiler window where you can then make the necessary correction and try running the compiler once again.

Potential Error 2: If the sum of the percent weights is not equal to 100, the compiler will stop running and a warning window will open indicating the error. If that happens, click the “OK” button in the warning window. Doing so will return you to the compiler window where you can then make the necessary correction and try running the compiler once again.

The process may take some time due to the amount of data processed during the analysis. It is not uncommon for the process to take up to five minutes or more, depending on the size of the data sets and the processing speed of your computer.

8. Once the process has been completed, the output file will appear automatically in the ArcGIS view window. For best viewing of the results, you may want to change the color ramp to the setting of your choice.