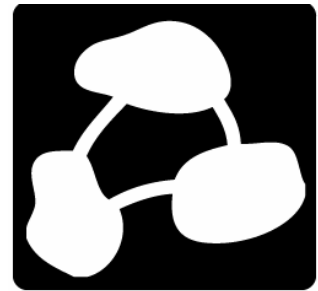


# CorridorDesigner ArcGIS Toolbox Tutorial

The CorridorDesigner project is funded by a generous grant from the Environmental Research, Development and Education for the New Economy (ERDENE) initiative from Northern Arizona University.

[corridordesign.org](http://corridordesign.org)

Our approach was initially developed during 2001-2006 for South Coast Missing Linkages, a set of 16 linkage designs in southern California (draft & final designs at [scwildlands.org](http://scwildlands.org)). Kristeen Penrod, Clint Cabañero, Wayne Spencer, and Claudia Luke made enormous contributions to SCML and the procedures in CorridorDesigner.



Our approach was modified for the Arizona Missing Linkages Project, supported by Arizona Game and Fish Department, Arizona Department of Transportation, U.S. Fish and Wildlife Service, U.S. Forest Service, Federal Highway Administration, Bureau of Land Management, Sky Island Alliance, Wildlands Project, and Northern Arizona University.

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Over the past 5 years, we discussed these ideas with Andrea Atkinson, Todd Bayless, Clint Cabañero, Liz Chattin, Matt Clark, Kevin Crooks, Kathy Daly, Brett Dickson, Robert Fisher, Emily Garding, Madelyn Glickfeld, Nick Haddad, Steve Loe, Travis Longcore, Claudia Luke, Lisa Lyren, Brad McRae, Scott Morrison, Shawn Newell, Reed Noss, Kristeen Penrod, E.J. Remson, Seth Riley, Esther Rubin, Ray Sauvajot, Dan Silver, Jerre Stallcup, and Mike White. We especially thank the many government agents, conservationists, and funders who conserve linkages and deserve the best possible science.



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By downloading or using any of the CorridorDesigner GIS tools, you agree to the following terms and conditions:

These tools are available to assist in identifying general areas of concern only. Results obtained by the tools provided should only be relied upon with corroboration of the methods, assumptions, and results by a qualified independent source.

The user assumes full responsibility for the misinterpretation or manipulation of the data. The user of this information shall indemnify and hold free the Northern Arizona University, the State of Arizona, and the creators of the CorridorDesigner GIS tools from any and all liabilities, damages, lawsuits, and causes of action that result as a consequence of his/her reliance on information provided herein or from any misinterpretation or manipulation of the data.

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## CREDITS

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CorridorDesigner requires ArcGIS 9.1 or 9.2 with the Spatial Analyst extension activated. The current release of the CorridorDesigner toolbox must be used in ArcCatalog. We are working on a version that runs correctly in ArcMap.

This short tutorial documents CorridorDesigner's main tools; for additional documentation, please see the in-tool help, available by clicking the help button within each tool.



# PREPARING FOR ANALYSIS

## Introduction to the tutorial dataset

This tutorial uses data from one linkage design created for Arizona Missing Linkages, a two-year project funded by the Arizona Game and Fish Department which produced 16 linkage designs throughout Arizona. The linkage aimed to connect two large wildland blocks managed by the U.S. Forest Service. The southwestern wildland block (hereafter: *Tumacacori wildland block*) includes over 200,000 acres within the Coronado National Forest, plus the adjoining 118,000 acre Buenos Aires National Wildlife Refuge. The northeastern wildland block (hereafter: *Santa Rita wildland block*) consists of 173,000 acres of Coronado National Forest, the 53,000-acre Santa Rita Experimental Range and Wildlife Refuge, the BLM-administered 45,000-acre Las Cienegas Natural Conservation Area, the 5,000 acre Patagonia Lake State Park, and the Nature Conservancy's 1,350-acre Patagonia-Sonoita Creek Preserve.

While the Arizona Missing Linkages project modeled 19 species for this linkage design, we will be focusing on just one—black bear.

All data required for the tutorial are found in the accompanying zip file available on <http://corridor-design.org/downloads>.

Within the zip file are three folders:

- *basemap* includes all GIS data, in NAD UTM 83 z12 projection. Land cover was derived

from the Southwest ReGAP land cover data set, elevation was derived from the NED DEM, and most vector layers came from Arizona Land Resource Information System (ALRIS).

- *output* is an empty directory to use for storing model outputs
- *speciesData*: includes parameterizations for five species
- *layerFiles*: includes ArcGIS .lyr files for symbolizing habitat suitability, patch maps, and topographic position

## Setting up a project directory and naming conventions

While everyone manages GIS projects differently, we suggest creating a uniform directory structure and naming conventions for managing analysis layers. It is not uncommon to create 20-30 data layers for each species modeled in an analysis—if modeling more than a species or two, data management gets messy quickly.

### COPYING THE TUTORIAL DATA

1. To work through the tutorial, download and extract the *CD\_toolbox\_tutorial\_data.zip* file to your local hard drive.

### CREATING AN ANALYSIS DIRECTORY STRUCTURE

1. Within the *tutorial* directory, you will find a folder named *basemap* and a folder named *output*. All input GIS layers—such as land cover, elevation,



roads, and wildland blocks—are saved in the *basemap* folder. All modeling output—such as habitat suitability models, habitat patch maps, and corridor models—will be saved in the *output* folder.

#### NAMING CONVENTIONS

All CorridorDesigner output is in the form of shapefiles and ESRI rasters. While shapefiles support long file names, rasters are limited to 13 characters. We recommend the following naming conventions:

- Do not use spaces in the output directory path or filenames
- For tools requiring species name as a parameter, limit the name to 9 characters with no spaces.

#### LOG FILES

One of the great additions to geoprocessing in ArcGIS 9.x is the ability to use the command line to run tools in ArcToolbox. While all examples in this tutorial show the CorridorDesigner dialog boxes, CorridorDesigner also creates a text log file every time a tool is run which saves the command line syntax for the tool. This makes the tool easy to re-run, and is useful for reviewing what parameters were used in any given analysis.

## Defining the analysis area and wildland blocks

NOTE: *The analysis area and wildland blocks have already been created and saved to the basemap folder for this tutorial. You will need to repeat these steps when using CorridorDesigner with your own data set.*

1. Navigate to the folder where you copied the tutorial data, and under the path \tutorial\, open CorridorDesigner\_tutorial.mxd.
2. In ArcCatalog, create a new empty polygon shapefile named “analysis\_area.shp,” and save it in the \tutorial \basemap folder. Set the projection to NAD\_1983\_UTM\_Zone\_12N. If you do not know how to create a new shapefile in ArcCatalog, open the ArcGIS help by selecting “ArcGIS Desktop Help” under the Help menu, and search for *creating new shapefiles*.
3. Add analysis\_area.shp to ArcMap by clicking the Add Data button on the Standard toolbar.
4. *Define the analysis area.* In ArcMap, make sure the editing toolbar is turned on (View > Toolbars > Editor). Start an editing session on analysis\_area.shp, select the Sketch Tool on the Editor toolbar, and draw a rectangle around the Santa Rita Mtns USFS block, the Tumacacori-Atascosa Mtns USFS block, and the Buenos Aires NWR block. Stop the editing session and save your changes: the rectangle you just saved will be your analysis area.
5. *Creating wildland block 1.* Set the ownership layer as the only selectable layer (Selection > Set Selectable Layers > Click ownership on). From the ownership file select the Santa Rita Mtns USFS block. Right-click the ownership layer in the Table of Contents, and select Data > Export Data. Export the selection to a new shapefile named SantaRita\_WildlandBlock.shp, saving it in the \tutorial \basemap folder. This will be the *Santa Rita Wildland Block*.

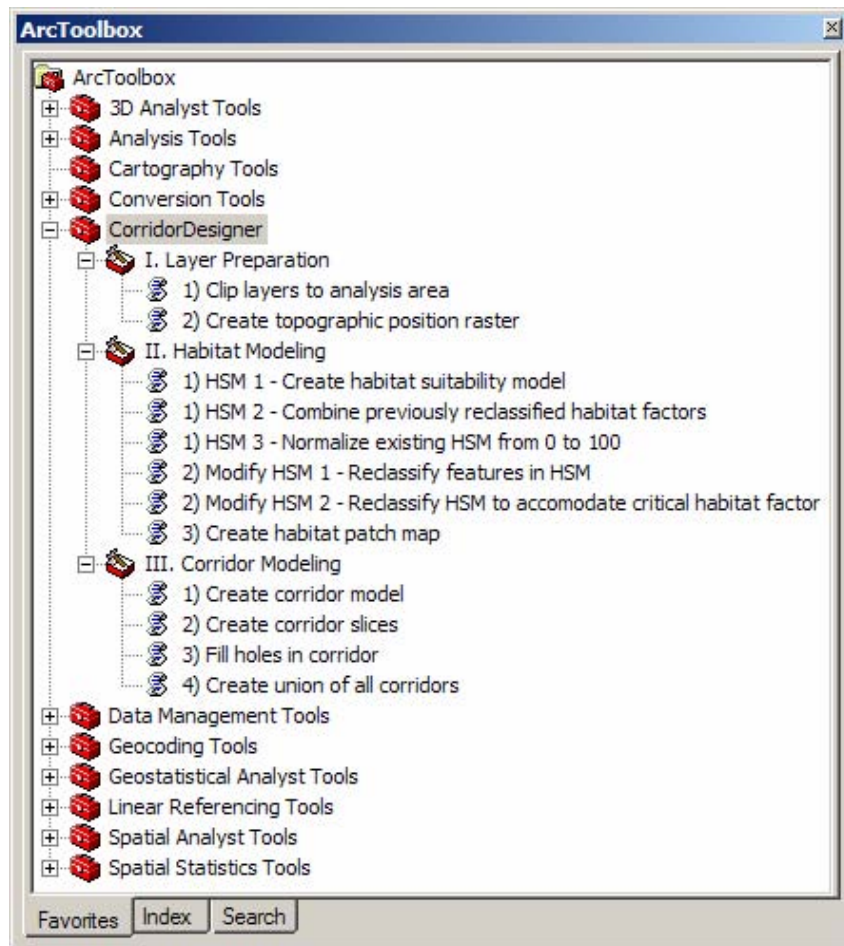
6. *Creating wildland block 2.* Repeat the procedures from step 5 to create wildland block 2. From the ownership file select the Tumacacori-Atascosta Mtns USFS block and the Buenos Aires NWR blocks. Export the selections to a new shapefile named Tumacacori\_WildlandBlock.shp, saving it in the \tutorial \basemap folder. This will be the *Tumacacori Wildland Block*.

## Adding the CorridorDesigner toolbox

Now that we have defined the analysis area and wildland blocks, we will use CorridorDesigner to prepare data layers for analysis. First, we need to add the CorridorDesigner toolbox to ArcToolbox.

ArcToolbox can be used in both ArcMap and ArcCatalog. Adding the CorridorDesigner toolbox to ArcToolbox follows the same procedure in both programs. Throughout this tutorial, we will conduct modeling in ArcCatalog, and view the results in ArcMap.

1. Show the ArcToolbox window by clicking the ArcToolbox button.
2. Right-click the ArcToolbox folder inside the ArcToolbox window and click Add Toolbox.



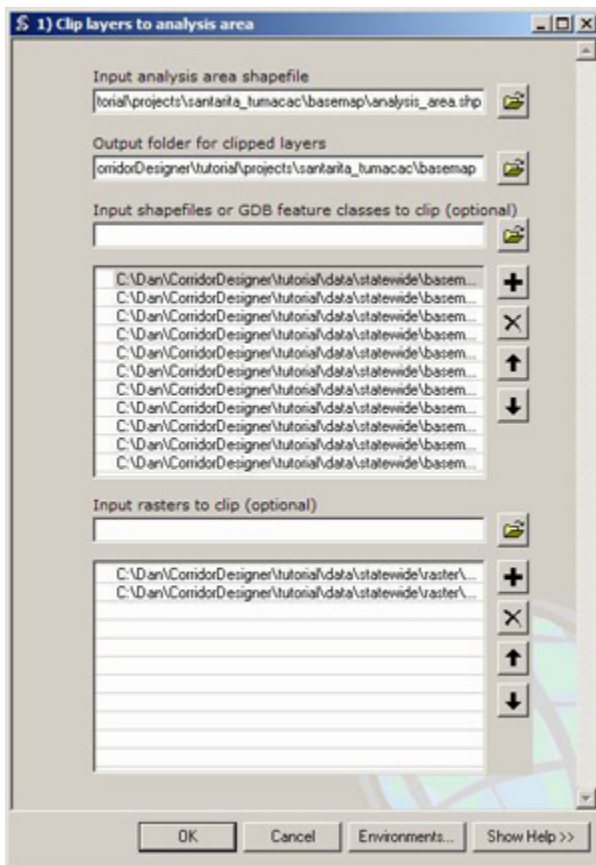
3. Click the Look in dropdown arrow and navigate to the location of the CorridorDesigner toolbox. By default, this is found under CorridorDesigner\tools.
4. Click the toolbox.
5. Click open. The CorridorDesigner toolbox is added to the ArcToolbox window.

6. Make sure the Spatial Analyst extension is activated: Go to Tools > Extensions, and ensure Spatial Analyst is checked on.

## Clipping analysis layers

NOTE: *Analysis layers have already been clipped and saved to the basemap folder for this tutorial. You will need to repeat these steps when using CorridorDesigner with your own data set. For now, you can skip to the next step, Creating a topographic position raster.*

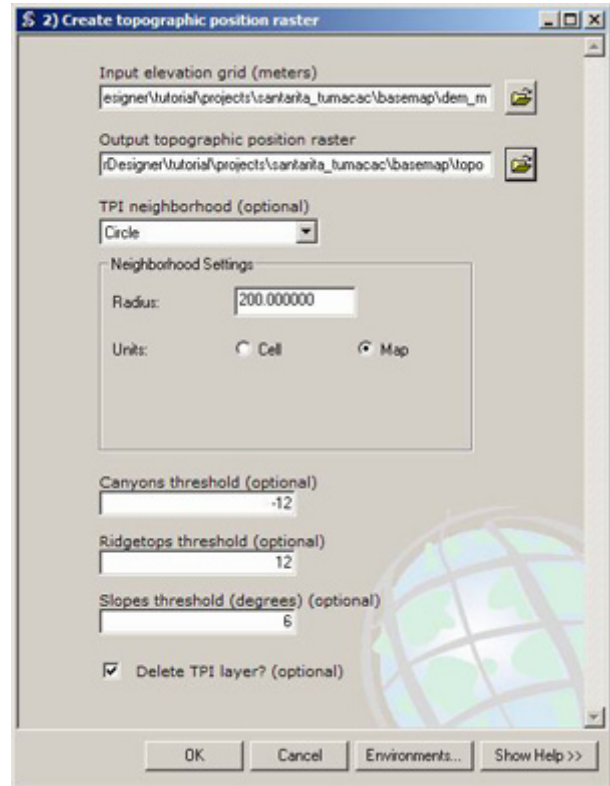
Once the analysis area and wildland blocks have been defined, we need to gather all relevant GIS layers that will be used in the analysis, and clip these layers to the analysis area. While statewide or large regional datasets can be used without clipping them to the analysis area, clipping all data to the analysis area improves processing time, reduces the size of layers created during the modeling process, and creates a convenient stand-alone project which can be shared with partners.



1. Within CorridorDesigner, expand the I. Layer Preparation toolbox, and double-click the first tool, 1) *Clip layers to analysis area*
2. Add the analysis area shapefile into the first parameter box.
3. We want to save all of the clipped layers into the `\projects\basemap` folder. Add this folder to the second parameter box.
4. The clip layers tool accepts two types of inputs: vector data, such as shapefiles and feature classes, and raster data, such as the elevation and land cover grids. In the third parameter box, add all of the supplied vector data, found in: `\CorridorDesigner\statewide\basemap`
5. To clip the two statewide raster layers to the analysis area, add `aml_landcover` and `dem_m` to the fourth parameter box. These are found in `\CorridorDesigner\tutorial\data\statewide\raster`.
6. Click OK.
7. When the tool has finished, browse to the `\tutorial\basemap` folder. Right-click on the folder, and click Refresh. If you preview these layers, you will see that they have been clipped to the analysis area.
8. At this point, we will no longer work with any of the statewide data. Make sure that for any further analyses in the tutorial, you use the clipped layers, found in the `\tutorial\basemap` folder. Failure to do so may result in long processing times and a cranky computer!

## Creating a topographic position raster

1. Double-click the 2) *Create topographic position raster* tool to open it.
2. Add the clipped elevation raster, found in `\tutorial\basemap\dem_m`
3. Name the output raster *topo*, and save it in the `tutorial\basemap` folder.
4. The default parameters in this tool were used for the Arizona Missing Linkages project. In a nutshell, the parameters say: “Compared to all of the pixels found in a 200m radius surrounding a given pixel:
  - the pixel will be classified as a *canyon bottom* if the pixel has an elevation at least 12m less than the average of the neighborhood pixels
  - the pixel will be classified as a *ridgetop* if the pixel has an elevation at least 12m greater than the average of the neighborhood pixels
  - the pixel will be classified as a *flat-gentle slope* if the pixel is not classified as a canyon bottom or ridgetop, and has a slope less than 6 degrees
  - the pixel will be classified as a *steep slope* if the pixel is not classified as a canyon bottom or ridgetop, and has a slope more than 6 degrees
5. We will accept these default parameters. Press OK to run the tool.



6. In the output topographic position raster, topographic positions are given numeric codes using the VALUE attribute:

- 1 is a canyon bottom
- 2 is a flat-gentle slope
- 3 is a steep slope
- 4 is a ridgetop

7. We have included a layer file, located in `\tutorial\layerFiles\TopographicPosition.lyr` to symbolize this.

8. To review how well the topographic position raster characterized the landscape, it is useful to view it in conjunction with a hillshade. Create a hillshade using the hillshade tool found in the Spatial Analyst > Surface toolbox. Add the hillshade to

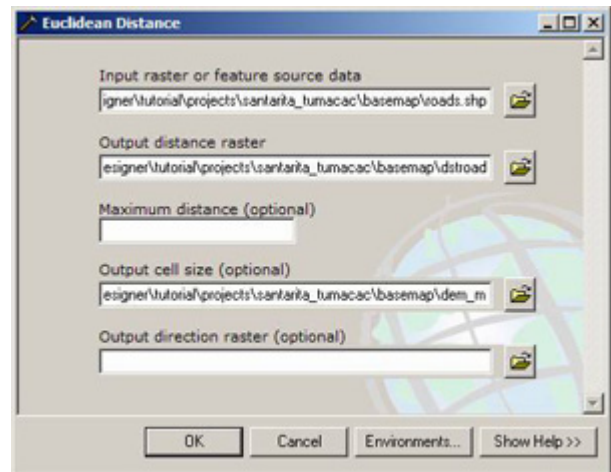
ArcMap on top of the topographic position raster, and set its transparency to 60%. How does the topographic position raster look?

## Creating a distance-from-roads raster

In order to create habitat models, we have one more raster to create—a distance from roads layer. To do this we will use a standard tool found in the Spatial Analyst toolbox.

1. Open the Euclidean Distance tool, found in the Distance toolset of the Spatial Analyst Tools toolbox.
2. Select the clipped roads shapefile, found in \tutorial\basemap for the first parameter, *Input raster or feature source data*,
3. Name the output distance raster *dstroad*, and save it in the \tutorial\basemap folder.

4. We want the output distance from roads raster to have the same cell size (30m) as the elevation model. Select the clipped elevation model, *dem\_m*, found in the \tutorial\basemap folder, for the fourth parameter, *Output cell size*.
5. Click OK.



# MODELING HABITAT

With the analysis area and wildland blocks defined, and the necessary GIS layers clipped and created, we are now ready to create habitat suitability models.

CorridorDesigner provides three tools for creating habitat suitability models. For this tutorial, we will concentrate on the primary tool. Details on how to use the other two tools, which a) combine previously reclassified habitat factors into a suitability model, and b) normalize an existing suitability model into a 0-100 framework, can be found within the in-tool help for each.

## Creating species factor reclassification files

CorridorDesigner uses reclassification text files to build habitat suitability models. While developing these text files may initially seem cumbersome, once created, they can be reused for many habitat or corridor analyses. For this tutorial, we have provided data for 12 species. To understand the format of these text files, we'll work with data for the black bear.

1. Browse to `\tutorial\speciesData\blackbear`

2. In this folder you will find 6 text files and 1

Microsoft Excel spreadsheet. The Excel spreadsheet is the original habitat model filled out by a species expert. We will not be using it in this tutorial, but you may find it useful to look at. The 6 text files are:

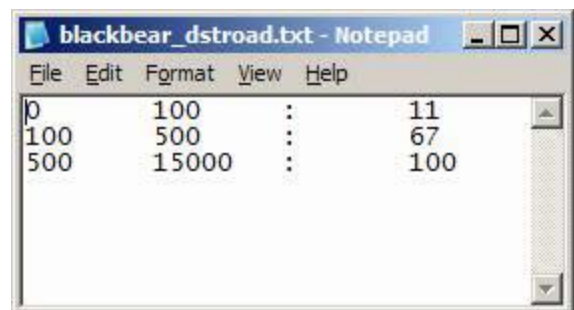
- *blackbear\_dstroad.txt*: distance-from-roads reclass file

- *blackbear\_elev\_m.txt*: elevation (in meters) reclass file
- *blackbear\_Indcvr.txt*: land cover reclass file
- *blackbear\_topo.txt*: topographic position reclass file
- *blackbear\_weights.txt*: weights assigned to each of 4 habitat factors
- *blackbear\_patches.txt*: patch size information

3. Open the distance-from-roads reclass file. This file shows the required format for reclassifying continuous variables such as distance-from-roads and elevation. This file is simply a tab-delimited text file, with the continuous variable range on the left, a colon, and the suitability score on the right.

The file can be read as, "From 0 to 100 meters away from a road, the suitability score for black bear is 11. Between 100 and 500 meters away from a road, the suitability score is 67. Farther than 500 meters away from a road, the suitability score is 100.

4. Open `_elev_m.txt`. You will see that this file looks very similar to the roads reclass file, only the numbers on the left correspond to elevation in meters. The reclassification ranges in the elevation



text file have odd intervals because they were originally provided by the species expert as elevation in feet, which we converted to meters.

*Note:* When constructing distance-from-road or elevation reclass text files, make sure the reclass range encompasses all the possible values in your analysis area. For example, if there are 3,000 m mountains in your analysis area, provide a score up to 3000m (e.g. 2000 3000 : 75). If there are pixels in your study area that are 30,000m from a road, make sure your reclass range goes up to 30,000m.

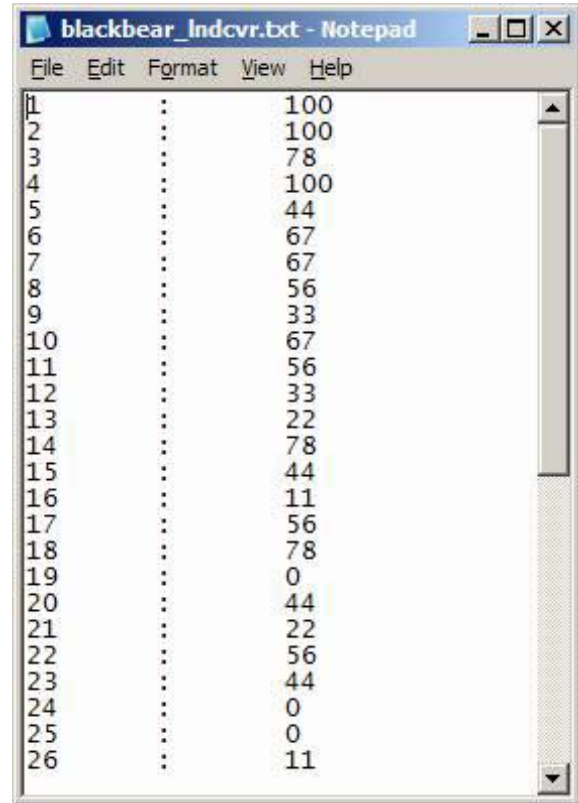
5. Open blackbear\_indcvr.txt. This file shows the required format for reclassifying categorical variables. The values on the left correspond to the VALUE attribute of the supplied land cover raster, while the values on the right correspond to the suitability score assigned to each land cover value. Again, this file is constructed by creating a simple tab-delineated text file.

Because these values are a bit mysterious without their corresponding land cover name (and ArcGIS drops all attributes except for VALUE when a raster is clipped), we have supplied a table which can be joined to the land cover grid to display names. This table is found here:

*\tutorial\statewide\aml\_landcover.dbf.*

6. Open blackbear\_topo.txt. You will see that this file looks similar to the land cover reclass file, only there are just 4 values which correspond to the topographic position categories discussed above.

*Note:* When constructing reclassification text files, all values must go in ascending numerical order (e.g. 1,2,3,4,5, NOT 1,3,2,5,4). The tool will fail if all values are not in ascending numerical order.



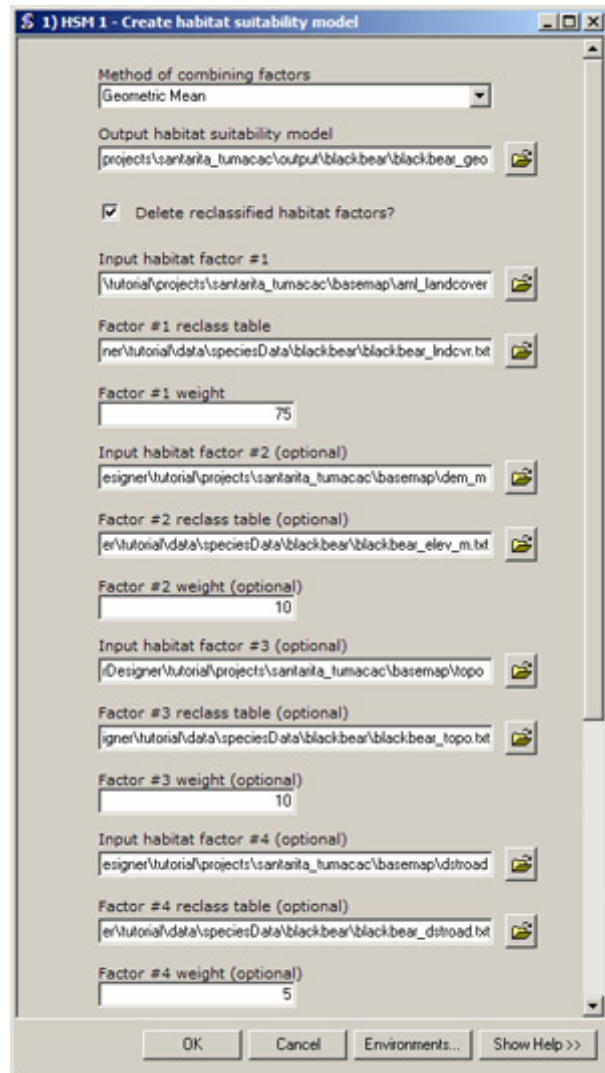
Row	Value	Score
1	:	100
2	:	100
3	:	78
4	:	100
5	:	44
6	:	67
7	:	67
8	:	56
9	:	33
10	:	67
11	:	56
12	:	33
13	:	22
14	:	78
15	:	44
16	:	11
17	:	56
18	:	78
19	:	0
20	:	44
21	:	22
22	:	56
23	:	44
24	:	0
25	:	0
26	:	11



## Creating a habitat suitability model

We will now use these reclassification text files to create a habitat suitability model for black bear. The habitat suitability model tool allows you to reclassify and combine 2-6 different habitat factors; we will just use the 4 factors discussed above.

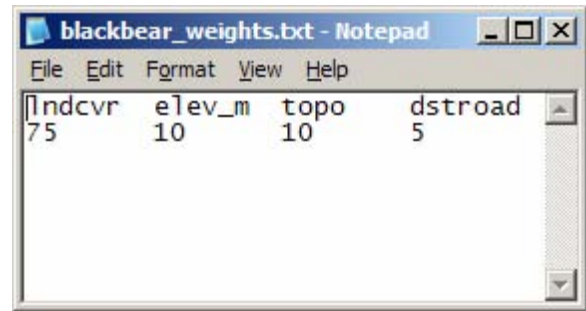
1. Double-click the first tool in the Habitat Modeling toolset, 1) *HSM 1- Create habitat suitability model*.
2. The habitat suitability model tool provides two algorithms for combining habitat factors—geometric mean and additive mean. For this exercise, we will chose geometric mean, but we encourage you to try and compare both methods.
3. Create a folder to store the output data for black bear, like this: `\tutorial\output\blackbear`
4. Choose a name for the output habitat suitability model. Remember that you are limited to 13 characters for raster names.
5. The *Create habitat suitability model* tool requires 3 parameters for every habitat factor used in a model:
  - *Habitat factor*: location of raster habitat factor
  - *Habitat factor reclass table*: location of reclass tables discussed above
  - *Habitat factor weight*: importance weight assigned to each habitat factor.



6. First, let's enter our habitat factors, as shown above. All clipped factors were stored in the `/basemap` folder. Browse there, and add `aml_landcover` as Input habitat factor #1, `dem_m` as factor #2, `topo` as factor #3, and `dstroad` as factor #4.

7. Now, let's enter the reclass tables we discussed above. All reclass files were stored in the `\tutorial\speciesData\blackbear` folder. Browse there, and add `blackbear_indcvt.txt` as Factor #1 reclass table, `blackbear_elev_m.txt` as Factor #2 reclass table,

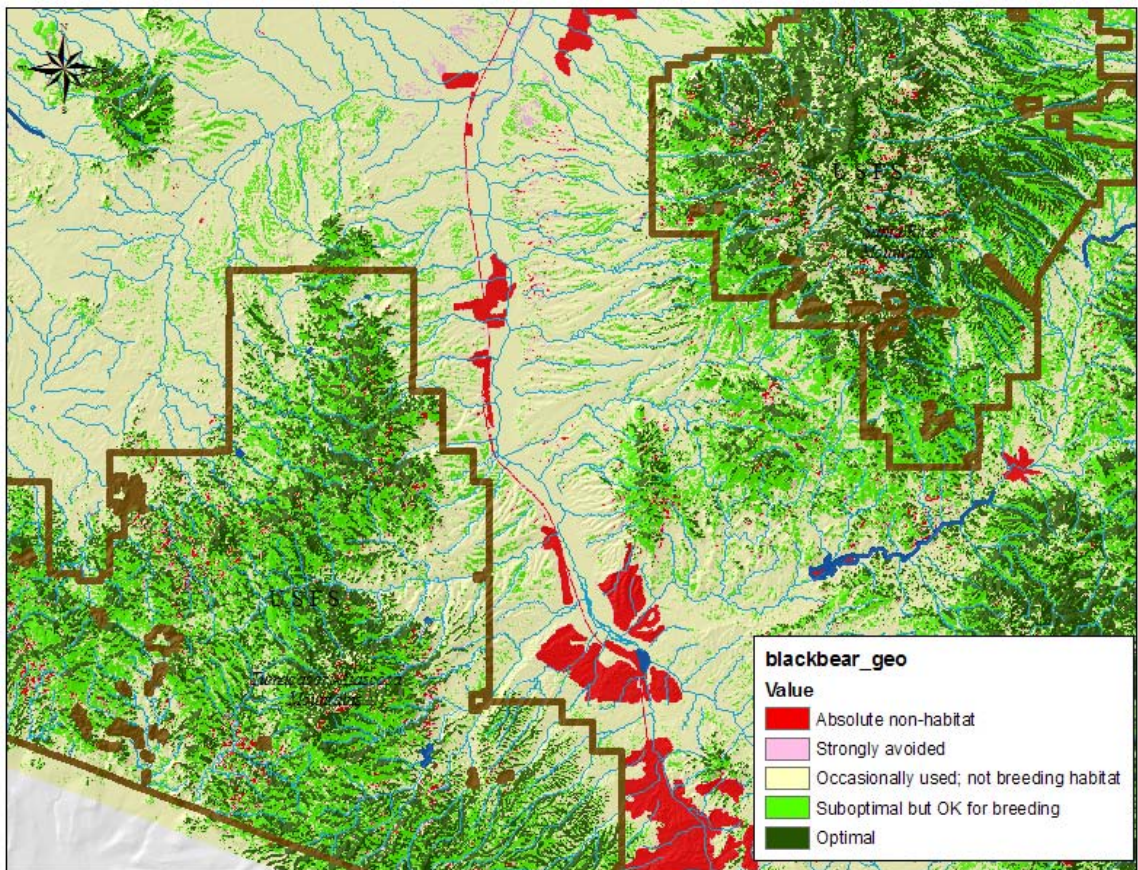
*blackbear\_topo.txt* as Factor #3 reclass table, and *blackbear\_dstroad.txt* as Factor #1 reclass table.



8. Our final step is to add habitat factor weights.

Open the file *blackbear\_weights.txt*, found in the *\tutorial\data\speciesData\blackbear* folder. Enter each of these weights in the dialog, as shown above.

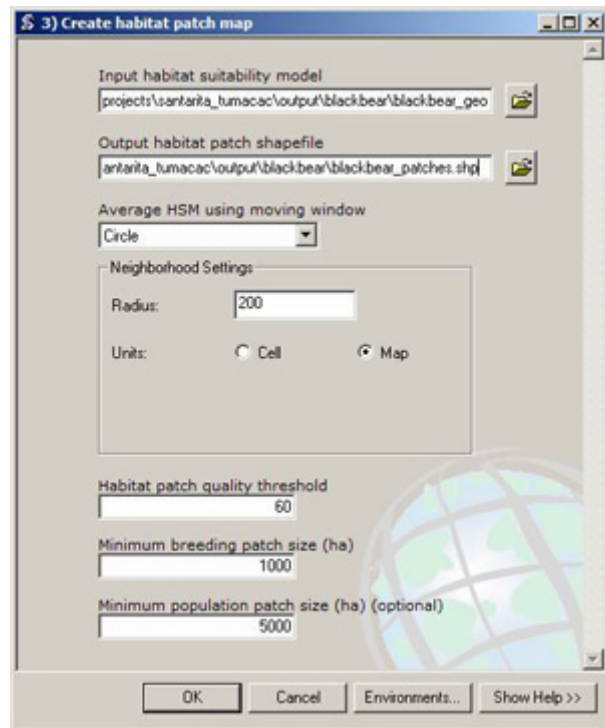
9. Press OK. When the tool finishes running, add the resulting habitat suitability map to ArcMap to examine the results. A *lyr* file to symbolize the habitat suitability model can be found in *\tutorial\layerFiles\HabitatSuitability.lyr*.



## Creating a habitat patch map

Now that we've created a habitat suitability model for black bear, let's create a map of potential habitat patches.

1. Double-click the last tool in the Habitat Modeling toolset, 3) *Create habitat patch map*.
  2. Add the habitat suitability model you created for black bear into the first parameter box.
  3. Select an output name for the patch shapefile. If experimenting with different habitat patch thresholds, you may find it useful to include the threshold within the output name. For example, we will be using a threshold of 60 here, so you might call the file *blackbear\_patches60.shp*.
  4. To average the habitat suitability map to account for black bear's perceptual range, we want to use a 200m radius circle around every pixel. Select Circle from the Average HSM using moving window box, enter 200 for the radius, and change the Units to Map.
- Caution:* Be careful about selecting units. If you select a radius of 200 cells around a focal pixel, ArcGIS will get overloaded and crash!
5. Change the habitat patch quality threshold from 50 to 60 to match the patch threshold used for the Arizona Missing Linkages project.
  6. Enter 1000 (ha) for the minimum breeding size, and 5000 (ha) for the minimum population patch size.
  7. Press OK.

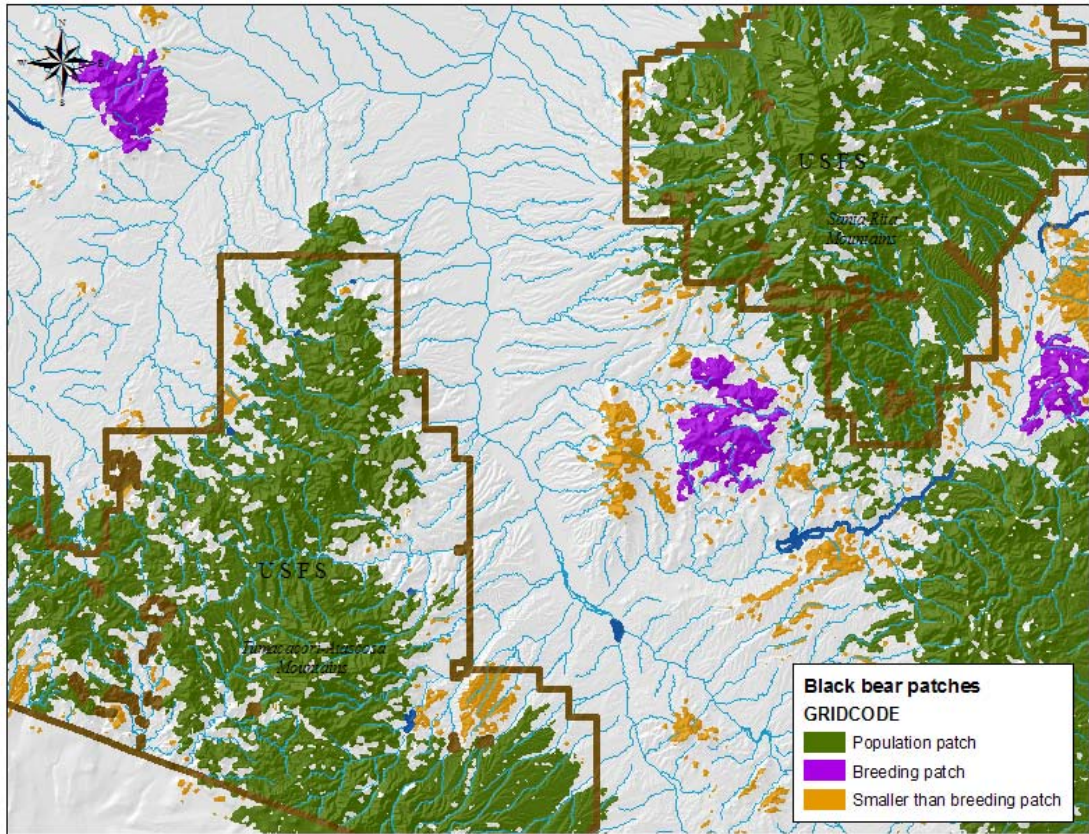


8. When the tool finishes running, add the resulting habitat suitability map to ArcMap to examine the results.

In the output habitat patch map, habitat patch sizes are given numeric codes using the GRIDCODE attribute:

- 3 is a potential population patch
- 2 is a potential breeding patch
- 1 is smaller than a potential breeding patch

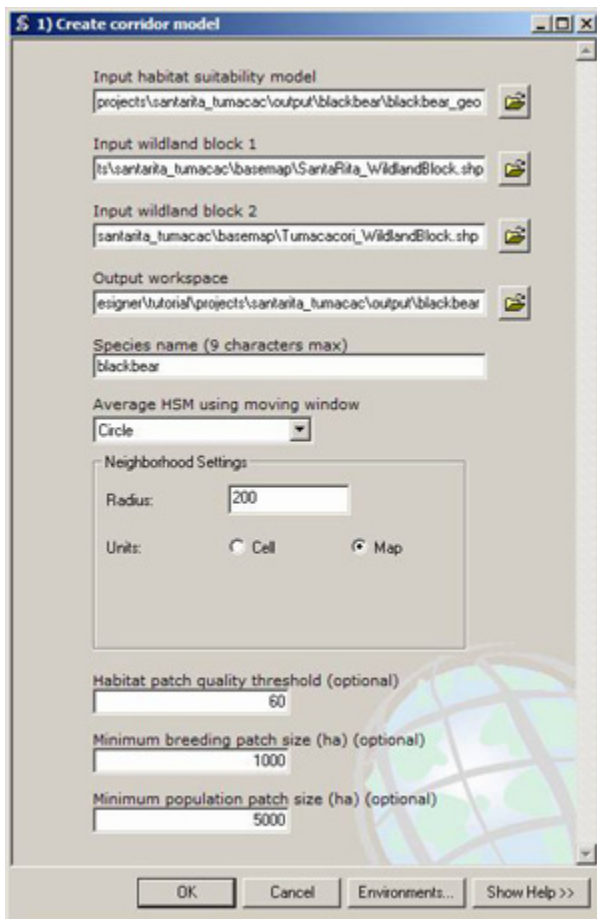
We have included a layer file, located in *tutorial\layerFiles\PatchConfiguration.lyr* to symbolize this.



# MODELING CORRIDORS

## Creating a corridor model

You will notice that the *Create corridor model* tool requires many of the same parameters as the *Create habitat patch map* tool. This is because CorridorDesigner recalculates a patch map within each of the wildland blocks. CorridorDesigner uses the patch map within each wildland block to determine starting and ending points for the corridor. It first attempts to use all population patches within a wildland block as starting points; if there are no population patches, it selects any breeding patches to use as starting points. If there are no breeding patches, CorridorDesigner will select any available habitat patches; however, you



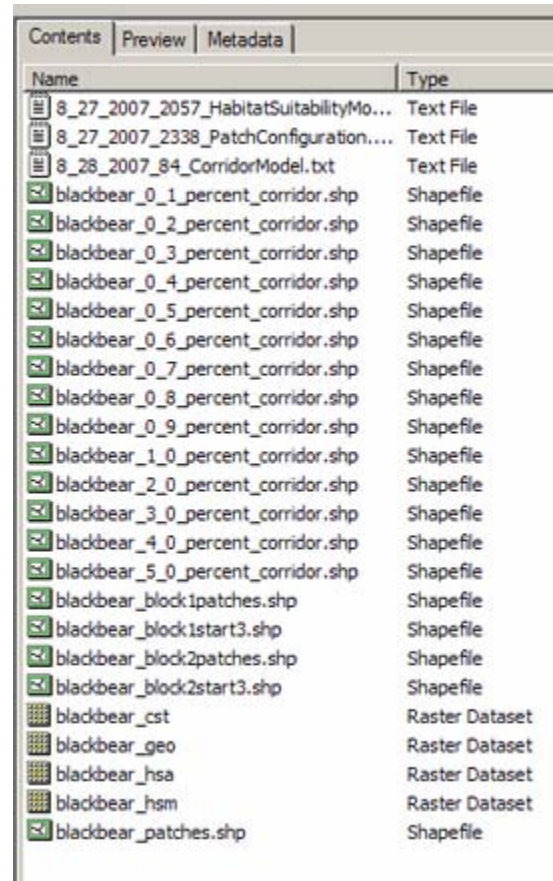
may want to reconsider if a corridor model is appropriate if there are not at least potential breeding patches within both wildland blocks.

1. Double-click the first tool in the Corridor Modeling toolset, 1) *Create corridor model*.
2. Add the habitat suitability model you created for black bear into the first parameter box.
3. Select the Tumacacori and Santa Rita wildland blocks you previously created, and add them to the second and third parameter boxes. *Note:* The input order of these protected blocks will not affect the analysis. Either the Tumacacori or the Santa Rita wildland block can be wildland block #1—just make sure you do not input the same wildland block for both wildland blocks #1 and #2!
4. Because the *Create corridor model* tool creates many output layers, you must select a folder in which to save the output layers, and a base species name to append to all output files. For *Output workspace*, select the output folder for black bear: *\tutorial\output\blackbear*. For *species name*, input *blackbear*, making sure there are no spaces between words.
5. Enter the habitat patch information for black bear you used in the previous exercise, *Creating a habitat patch map*.
6. Press OK.

7. When the tool finishes running, browse to the black bear output folder using ArcCatalog to examine the output.

The *Create corridor model* tool creates several output layers:

- *corridor slices*: denoted by the species name, and *\_x\_x\_percent\_corridor.shp*. The numbers *x\_x* refer to the percent of the landscape contained within the corridor slice. For example, the *0\_1\_percent\_corridor* is the most permeable 0.1% of the landscape connecting the wildland blocks.  
*3\_0\_percent\_corridor* is the most permeable 3.0% of the landscape. By default, the *Create corridor model* tool creates slices ranging from 0.1-10.0% of the landscape. To create additional corridor slices, use the tool *Create corridor slices*.
- *Cumulative cost grid*: denoted by the species name and *\_cst*. This grid is used to create new corridor slices using the *Create corridor slices* tool.
- *Corridor termini*: denoted by the species name and *\_block1start#.shp* or *\_block2start#.shp*. The *Create corridor model* tool creates maps of habitat patches found within each wildland block, and uses these as starting and ending

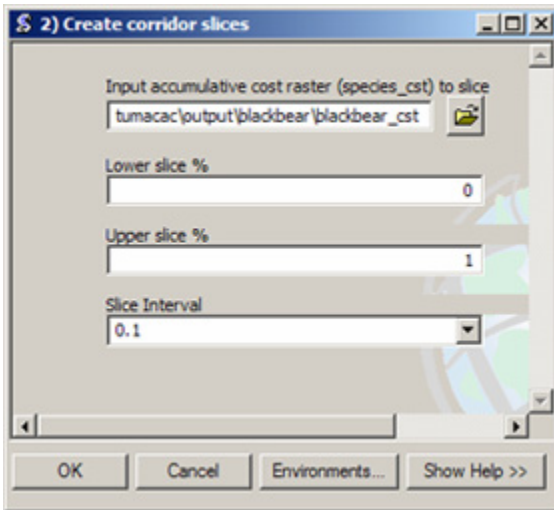


points for the corridor. If these shapefiles have a 3 appended to them, the corridor connected to a population patch in the wildland block; a 2 denotes breeding patch, and a 1 denotes that the corridor ran from any available habitat patch within the wildland block, because no breeding or population patches are located in the wildland block.

8. Add some of the resulting corridor slices to ArcMap to examine the results.

## Creating corridor slices

Determining the optimal width or size of a corridor is a landscape- and species-dependent task which involves examining multiple corridor slices.



By default, the *Create corridor model* tool creates slices ranging from 0.1-10.0% of the landscape, in 1% increments. After examining the initial corridor output, it is often desirable to examine corridor slices that fall between these faults. For example, you might want to examine different corridor sizes between 1.0% and 2.0% of the landscape for black bear. To do this, use the second tool in the CorridorDesigner toolbox, 2) *Create corridor slices*.

1. Double-click the second tool in the Corridor Modeling toolset, 2) *Create corridor slices*.
2. Add the accumulative cost raster, *blackbear\_cst*, you created for black bear into the first parameter box.
3. To create corridor slices between 0.1% and 1.0%, enter '0' for Lower slice %, and '1' for Upper slice %

4. To create all corridor slices between 0.1% and 1.0% in intervals of 0.1% (e.g. 0.1%, 0.2%, 0.3%, etc.), select 0.1 for Slice Interval.
5. To create all corridor slices between 0.1% and 1.0% in intervals of 0.2% (e.g. 0.2%, 0.4%, 0.6%, 0.8% ), select 0.2 for Slice Interval.
6. Press OK.
7. The corridor slices will be saved in the same folder as your accumulative cost raster, *blackbear\_cst*.

# GUIDE TO CORRIDORDESIGNER OUTPUT

*While you choose file names for the major output resulting from the general CorridorDesigner toolbox, several files are also created automatically.*

## TEXT LOG FILES

9\_10\_2007\_2215\_ ClipAnalysisLayers.txt

*(text file)*

Log file created by every CorridorDesigner tool.

mo\_day\_year\_hour\_toolname.txt

## LAYER PREPARATION

Tpi

*(raster)*

Topographic position index (TPI) created by *Create topographic position raster* tool. If the option to delete TPI layer is unchecked, it will be saved in the same folder as the topographic position raster. The topographic position index is calculated by subtracting the focal pixel's elevation from the average elevation in a neighborhood surrounding the pixel. For example, a TPI value of -6 m indicates a focal pixel is 6 m less than the average elevation in the neighborhood surrounding the pixel. A TPI value of 14 m indicates the focal pixel has an elevation 14 m higher than the average elevation of the surrounding neighborhood.

## HABITAT MODELING

[factor]\_r

*(raster)*

Reclassified habitat factors created by *Create habitat suitability model* tool. If the option to delete reclassified habitat factors is unchecked, they will be saved in the same folder as the species' habitat model. These reclassified habitat factors can be input along with factor weights into the *Combine previously reclassified habitat factors* tool to create a new habitat suitability model.

## CORRIDOR MODELING

[species]\_0\_1\_percent\_corridor.shp

[species]\_2\_0\_percent\_corridor.shp

[species]\_4\_3\_percent\_corridor.shp

Corridor slices created by *Create corridor model* or *Create corridor slices* tools.



<p>(<i>shapefile</i>)</p> <p>[species]_cst</p> <p>(<i>raster</i>)</p>	<p>This grid is used to create new corridor slices using the <i>Create corridor slices</i> tool.</p>
<p>[species]_hsa</p> <p>(<i>raster</i>)</p>	<p>Averaged habitat suitability model created during patch modeling.</p>
<p>[species]_block1 patches.shp</p> <p>(<i>shapefile</i>)</p>	<p>Map of habitat patches found completely within wildland block.</p>
<p>[species]_block1start3.shp</p> <p>[species]_block1start2.shp</p> <p>(<i>shapefile</i>)</p>	<p>The <i>Create corridor model</i> tool creates maps of habitat patches found within each wildland block, and uses these as starting and ending points for the corridor. If these shapefiles have a 3 appended to them, the corridor ran to a population patch in the wildland block; a 2 denotes breeding patch, and a 1 denotes that the corridor ran from any available habitat patch within the wildland block, because no breeding or population patches are located in the wildland block.</p>