Steps for Cost Distance

What you will need:

A set of origin points

One or more rasters representing factors that might contribute to landscape friction. (It is possible to rasterize a vector layer like roads for this purpose.)

(1) Reclassify the rasters to a difficulty scale you choose – with low numbers representing easy movement.

For example, if you are using a slope raster, you might set the top quartile of slopes to 100 (steep, hard to travel), the bottom quartile to 1 (flat, easy to travel) and the middle quartiles to 30 and 60.

Or, if you were using a roads raster, you might set the roads to 1 (easy to drive on), non-road land to 10 (not easy to drive on), and ocean to 10,000 (essentially impossible).

To combine factors, reclassify the individual rasters to a comparable scale --- say 1 to 10 or 1 to 100 – and then use Raster Calculator to add or otherwise combine them into a single friction raster.

(2) Before moving on, be sure you have created a single friction raster, where the cells contain values that represent in your judgment how hard it is to travel across that pixel.

Then run the cost distance tool, using your origin points as the features and your friction raster as the “cost raster.”

It is often necessary to adjust the stretch on the output to convey more detail in the lower ranges of the cost distance output layer.