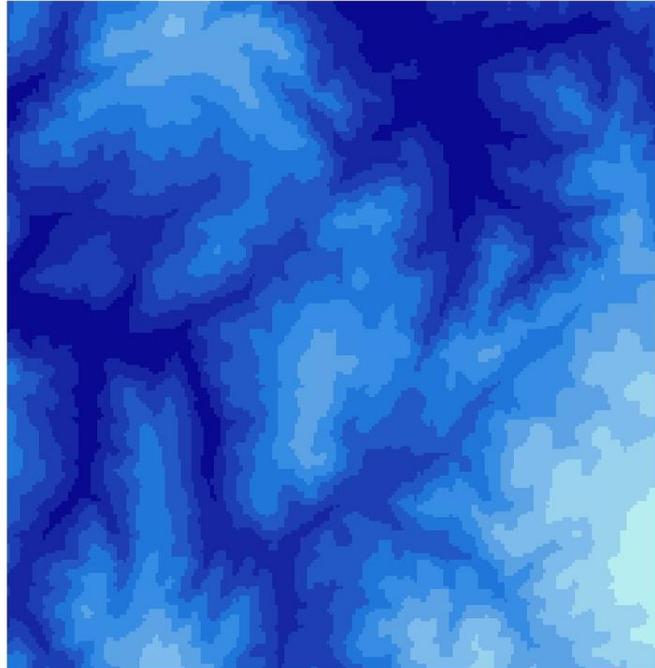


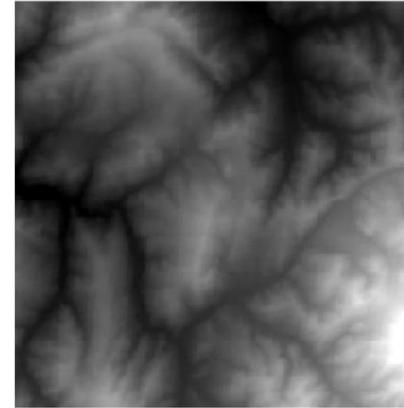
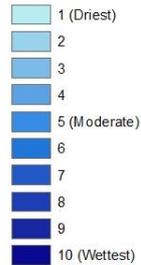
Lab 5 ACC Garden- Plant Suitability

Josh Hammes

Elevation Reclassify



Elevation Moisture
Flagtail, Oregon

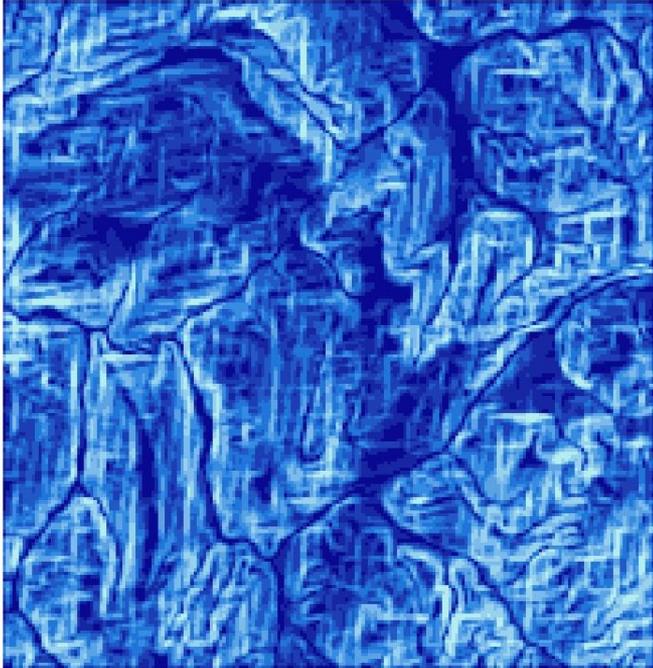


Elevation
Flagtail, Oregon

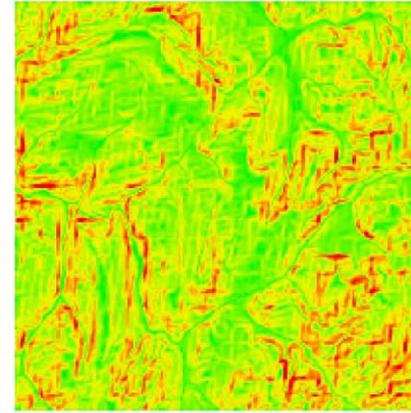
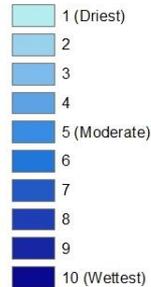


The elevation factor was created by reclassifying the original DEM with the reclassify tool. The reclassification was grouped into ten categories in sequence by elevation values. The highest elevation is grouped into category one, which represents the driest areas of the region. This sequence continues until value ten, which holds the lowest elevations which are also the wettest, as water tends to pool down slope.

Slope Reclassify



Slope Run-Off
Flagtail, Oregon

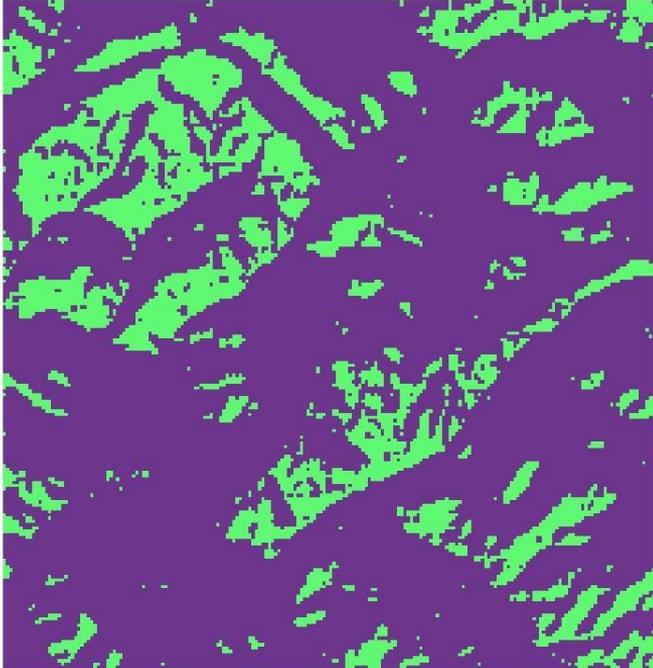


Slope
Flagtail, Oregon



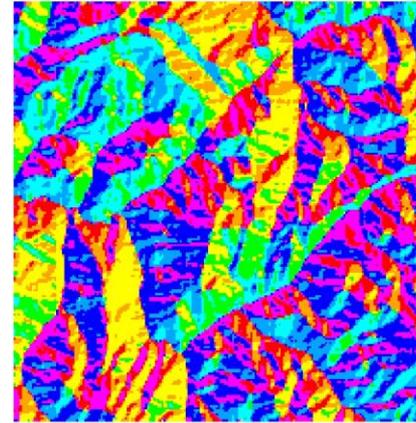
To obtain slope, we used the DEM as the base layer to run the slope tool. Once the new slope layer was created, we were able to use the reclassify tool to create a new reclassified slope layer. This new layer was given the same ranking scale as elevation with the steepest slopes falling into bin one (driest) and the lowest grade of slopes falling into bin ten (wettest). The steeper slopes are given a drier grade as run-off is more intense.

Aspect Reclassify



Areas of Sun Exposure
Flagtail, Oregon

Dark Purple Non-north (Wetter)
Light Purple North (Drier)



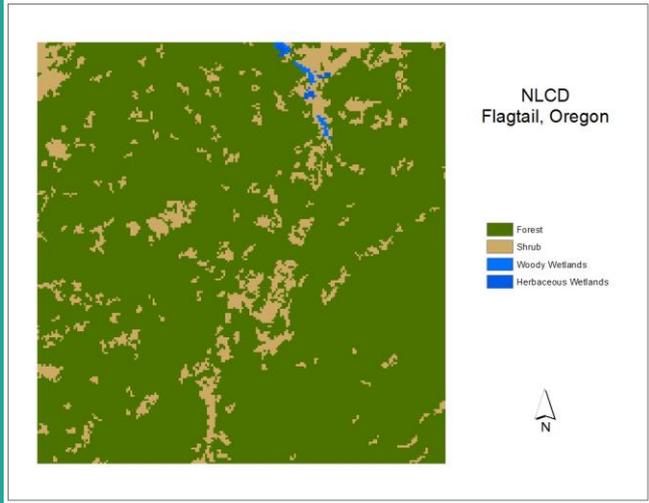
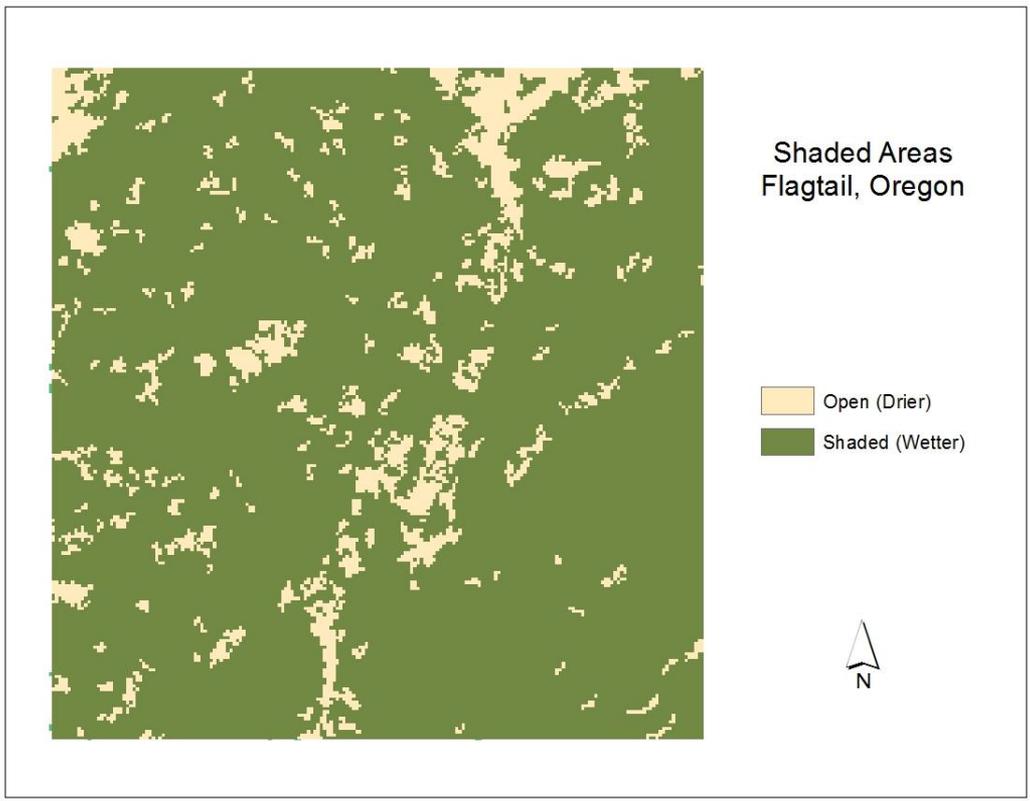
Aspect
Flagtail, Oregon

Flat (-1)
North (0-22.5)
Northeast (22.5-67.5)
East (67.5-112.5)
Southeast (112.5-157.5)
South (157.5-202.5)
Southwest (202.5-247.5)
West (247.5-292.5)
Northwest (292.5-337.5)
North (337.5-360)



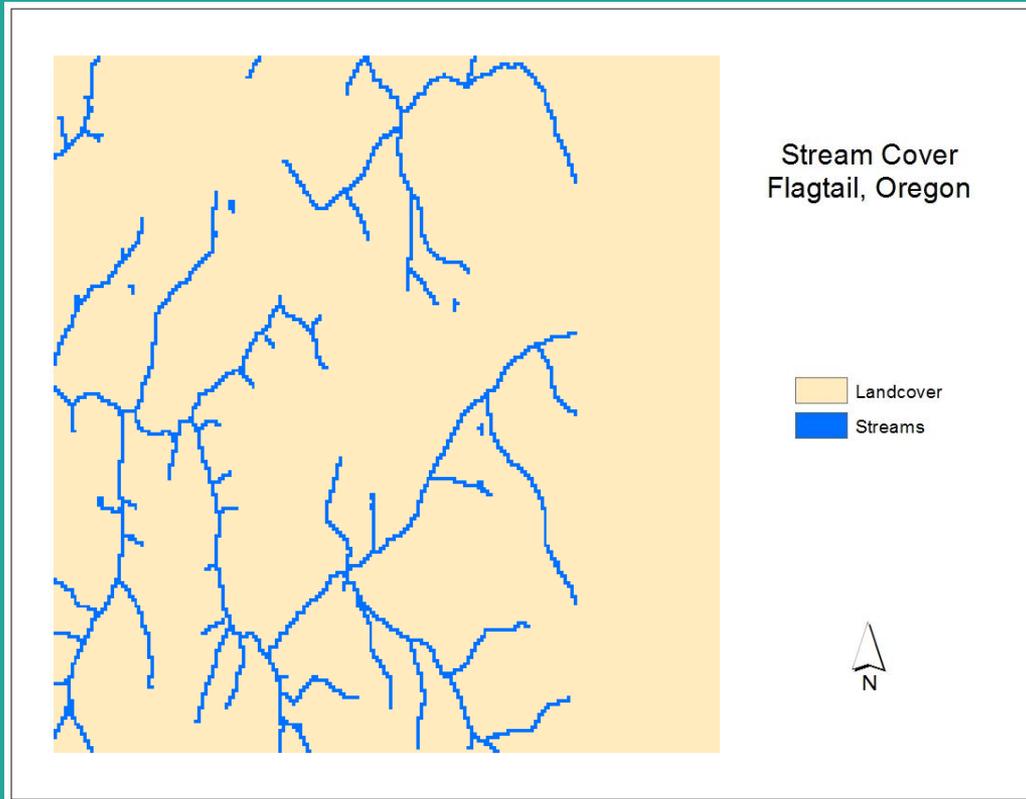
The aspect map was created first by running the aspect tool using the DEM raster layer. After the aspect layer was created we used the reclassify tool to separate the categories into those that faced towards the sun (North) and those that did not. The areas that faced towards the sun are drier than those areas that do not, this ranking was factored into the final raster calculation.

Shaded Areas (Forest Cover)



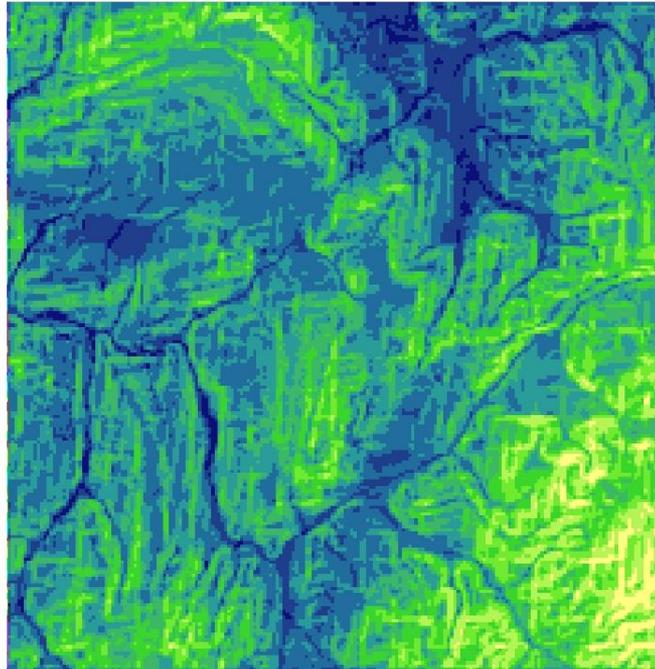
The shaded areas layer was created using the NLCD layer given with the original data. The forested area was selected from the NLCD to determine which regions of the map would be shaded and therefore wetter. This was also done inversely with the dry shrub land that represents drier open land on the map. Both layers were created for use in the raster calculator for soil moisture ranking.

Stream Reclassify

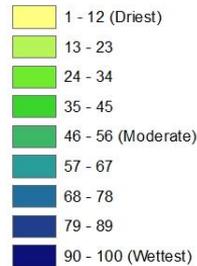


To create a useable streams layer for the raster calculation, the original vector streams layer was converted to raster using the feature to raster tool. This new raster was then reclassified to achieve a ranking scheme of streams or no streams so that proper weight could be added later such as the 25% of overall moisture in their vicinity. Due to the presence of streams only in the western portion of the area, a solution was to edit the layer so that it encompassed the entire region rather than just that section of stream cover.

Soil Moisture

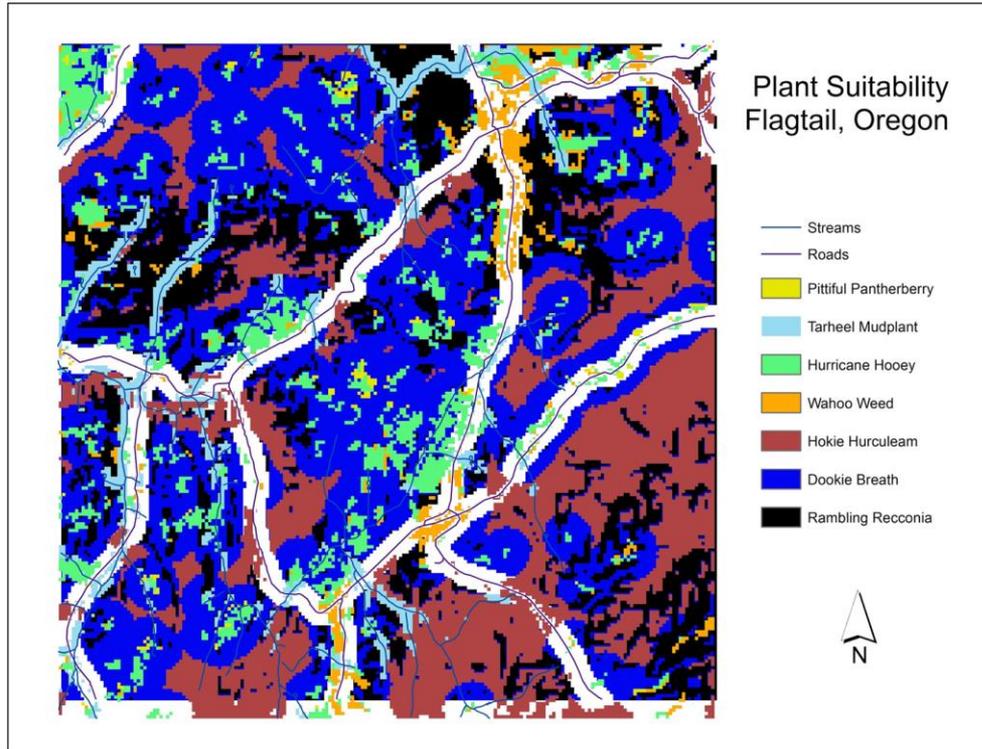


Soil Moisture Ranking
Flagtail, Oregon



To create the model that would predict and map soil moisture, the raster calculator was used to factor the previous raster layers and their respective weights. Layers such as elevation, slope, and aspect used their ranking schemes that were giving with reclassification. The other layers such as streams (+ 25%), shaded areas (+ 20%), and open areas (+ 15%) were also ranked when reclassified but given weights as well to factor moisture levels. The layers were multiplied together. Upon successful layer creation, the layer was reclassified to symbolize soil moisture out of a scale of 100. Values beginning at one are the driest on the map, while values near 100 represent the wettest areas on the map

Plant Suitability



Plant	Approximate Percentage
Pittiful Pantherberry	0.50%
Tarheel Mudplant	5.30%
Hurricane Hooley	7.10%
Wahoo Weed	9.80%
Hokie Herculium	21.30%
Dookie Breath	30.30%
Rambling Reconia	21.20%

Plant suitability regions were determined using raster calculator by creating layers based on the set parameters. We were able to deal with overlap by placing the plants with the lowest prominence ascending to ones with the most prominence so that the less prominent plants have a greater chance at being considered. By using the “Mosaic to New Raster” tool and choosing “first” option. This makes the output cell value of the overlapping areas receive the pixel value from the first raster in the list.

Pittiful Pantherberry

Plant Suitability
Flagtail, Oregon

 Pittiful Pantherberry



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA

This region was determined by creating a 50 meter euclidean distance around all Wahoo Weed and by creating a moderate moisture layer greater than Wahoo's moisture layer and by making a north facing slope layer. We then calculated all of them using raster calculator.

Tarheel Mudplant

Plant Suitability
Flagtail, Oregon

 Tarheel Mudplant



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA

First, we created a “wettest” moisture layer by classifying the lowest ranked moisture regions as 1 and everything else as 0. We also created a 50 meter buffer layer and reclassified that area to 0. We then used raster calculator.

Hurricane Hoey

Plant Suitability
Flagtail, Oregon



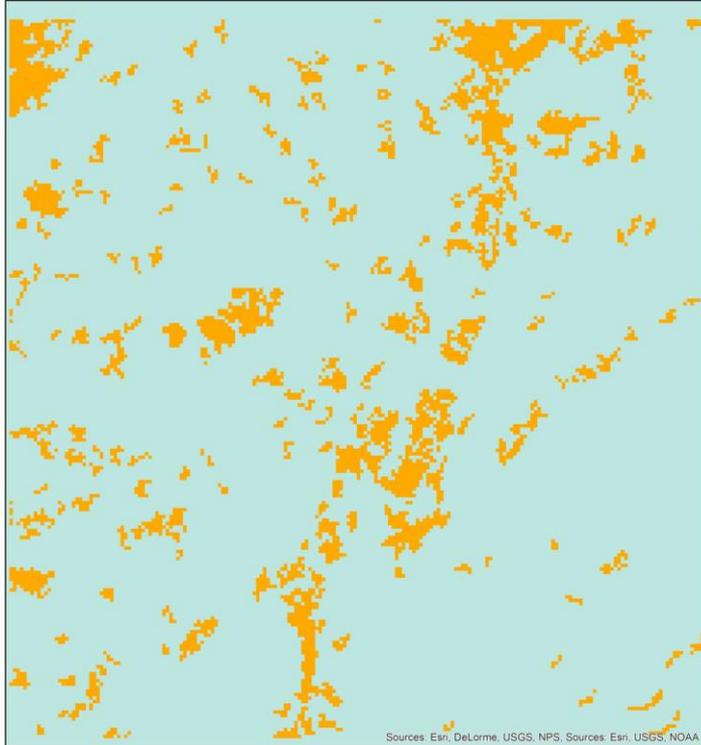
 Hurricane Hoey



We first created a moderate moisture layer as we did before. We also used the “open areas” layer that we made to avoid shade from trees.

Wahoo Weed

Plant Suitability
Flagtail, Oregon



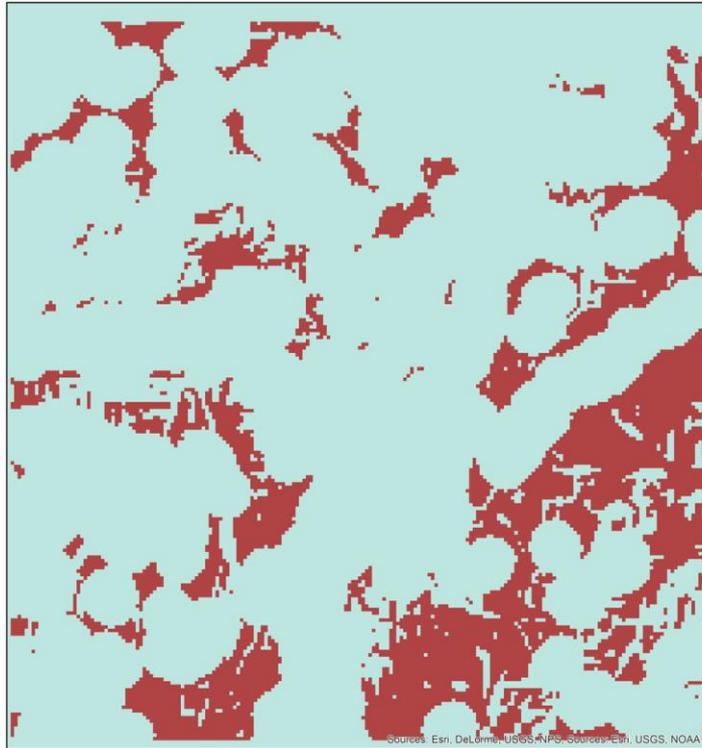
 Wahoo Weed



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA

We first made a “driest” layer and also combined that to the open areas layer that we made.

Hokie Herculean



Plant Suitability
Flagtail, Oregon

 Hokie Herculean

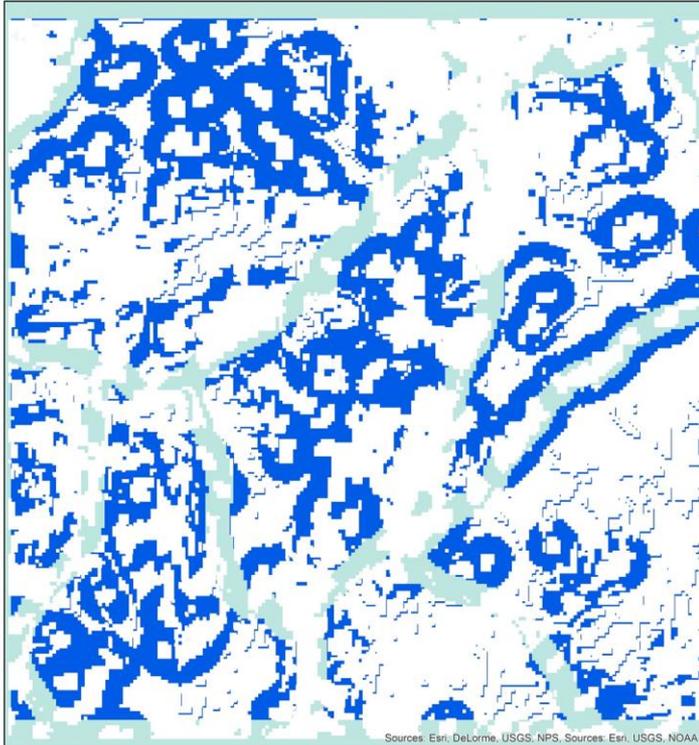


We created a slightly more moderate moisture layer than the others by including higher ranked numbers out of the 0-100 rank. We also created a layer by using the euclidean distance tool to make a 210 meter buffer around the wahoo weed and classifying all areas not in the buffer as one since we did not want this plant anywhere near the wahoo weed.

Dookie Breath

Plant Suitability
Flagtail, Oregon

 Dookie Breath



Since we did not have any urban areas we did not make that a parameter. However, we did have roads so we created a euclidean buffer of 100 meters around the roads and made all areas outside of that area a classification of 1 and inside the buffer a 0. We also used a “moderate” moisture layer to include as a parameter.

Rambling Reconia



Plant Suitability
Flagtail, Oregon

■ Rambling Reconia



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA

For this we underlaid a layer, roads non-inclusive, under the other 6 plants to “fill in” empty spots.