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Technical Report Week 10

Introduction: For this week’s challenge, we will be using raster geoprocessing tools and a conceptual model to determine ideal areas for big horn sheep for lambing in the forests of central Idaho. The criteria we will be basing our results on are if the area is within one kilometer of a river, the slope, aspect, type, and ruggedness of the terrain. Once all of these are calculated for the area within the boundary, we will use a weighted sum to get our final result. Using a conceptual model to map out our process will not only streamline our process, but it will make our process cleaner as well.

Data Used: Wilderness area kmz file = wilderness.net  
DEM = nationalmap.gov  
Landcover data = https://www.MRLC.gov/viewer.  
River data = ArcGIS Online Portal

Methods:

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| --- | --- | --- | --- |
| Objective/Criteria | Data | Processing Tool | Reclassify |
| Find areas with a slope between 27 & 80 degrees | DEM | Slope | >27, <40 and >60, <80 = 2, >40, <60 = 1 |
| Find areas within 1 km of water | Rivers and Streams | Euclidean Distance | <1km = 3, 2-5km = 2, >5km = 1 |
| Find areas with aspect between 90 and 270 | DEM | Aspect | S = 3, SE & SW = 2, else = 1 |
| Find the areas with rocky outcrops and good visibility | Land cover data | Reclassify | According to values in the attribute table |
| Finding areas where ruggedness is greater | DEM | Focal Statistics | Most rugged = 3, somewhat = 2, not rugged = 1 |
| Finding the ideal areas where big horn sheep live | Raster data calculated from previous categories | Weighted Sum | Ruggedness = 0.2  Aspect = 0.1  Distance from river = 0.3  Slope = 0.2  Land Cover = 0.2 |

Conclusion: I ended up doing the assignment twice because the first weighted sum raster I got was really pixelated and didn’t seem right, but it also happened the second time. I reclassified the intervals on the weighted sum output and it looks more interpretable this time. I tried to reduce the size of all of my outputs (slope, aspect, ruggedness, etc.) to the area that I needed to see if that changed anything, but it still came out extremely pixelated. I don’t know if using the extract mask tool affected the pixels of the inputs or something with my values are off. I’m pretty sure I did everything correctly, which makes me think that maybe I shouldn’t have trimmed everything at the beginning of my process and that I should’ve waited until I had completed all of my processing.

Map:

