

## ES322 Geomorphology

### Introduction to Landscape Observations and Physiography of Oregon

#### Observing, Describing and Classifying Landscape Domains

##### Introduction:

The goals of this exercise are to:

(1) Observe landscape patterns at the Earth's surface, (2) Familiarize yourself with the regional topography, geology and geomorphology of Oregon, and (3) Develop skills in observation and classification.

##### Procedure:

You will work in groups of three (or two), examining topographic aspects of the state of Oregon. Observations will be based on the large Oregon raised relief map in the hallway to the Jackson Street entrance to the Natural Science Building and Figures 1-3 (attached; Fig. 1 Oregon base map with major rivers and counties,, Fig. 2 a 10-m digital elevation model of Oregon, Fig. 3 a 10-m hillshade model of Oregon. Figure 4 is a blank Oregon base map that you will use to draw physiographic/topographic boundaries based on your observations and classification scheme. Each person will turn in their own written answers and base maps, as part of their lab portfolios. Team thinking and discussion are encouraged.

The Earth's surface can be divided into physiographic provinces based on the topography, hydrology, climate, vegetation, geology, soils, and human land use. Your objective is to observe and classify similar physiographic regions in the state of Oregon, using Fig. 4 as your base map on which to draw boundaries.

Make and record your observations for each province you identify, using the following landscape criteria:

1. Topography
  - a. River drainage patterns (dendritic, parallel, radial; densely or sparsely spaced tributaries?)
  - b. Presence or absence of canyon topography?
  - c. Equi-dimensional or elongated drainage basins?
  - d. High relief, rugged steep mountain slopes? Vs. subdued low-relief hills
  - e. Elongated ridges/mountains? Vs. Cone-shaped mountains? vs. flat / low-relief planar uplands?
2. Hydrography
  - a. rivers
  - b. lakes
  - c. glaciers
  - d. playas
3. Vegetation
  - a. green shaded relief areas: forest cover
  - b. shrub-steppe-grasslands
  - c. agricultural lands
  - d. high-altitude alpine (above tree line)
4. Landuse
  - a. urban
  - b. rural/agricultural
  - c. rural / range land
  - d. forest/timberland

Task 1: Using the raised relief map and attached figures, fill out Table 1 data sheets with observations organized according to the above criteria.

Task 2: Using Figure 4 blank base map, draw physiographic landscape boundaries covering the state of Oregon. Each of your landscape zones should be comprised of approximately the same type of topography, hydrography, vegetation, and land-use. Label your physiographic provinces as "Zone 1", "Zone 2", "Zone 3", etc., as many as you need.

Task 3: Compare your observations and physiographic maps to the Oregon State geologic map on the wall in NS218 and on the wall next to the raised relief map at the Jackson St. hallway on first floor of NSB. Make some interpretations as to which bedrock/geologic map units are associated with each of your physiographic domains.

Task 4: Write a 1-page summary (600-800 words) with a discussion of your observations, the physiographic provinces you identified and an interpretation of the geologic controls on the provinces.



Figure 1. Oregon Base Map Showing Rivers and Counties.

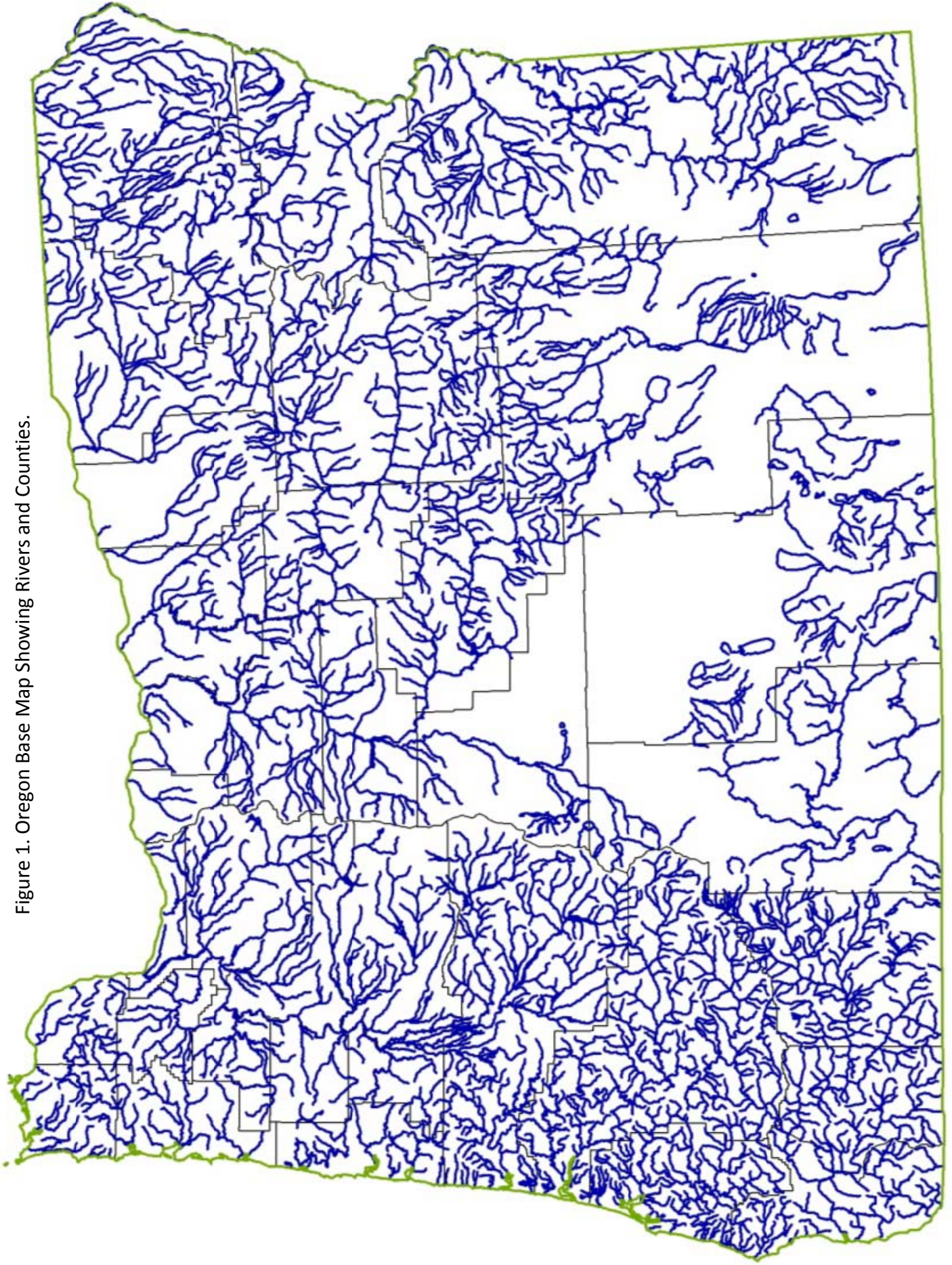


Figure 2. Oregon 10-m Digital Elevation Model.

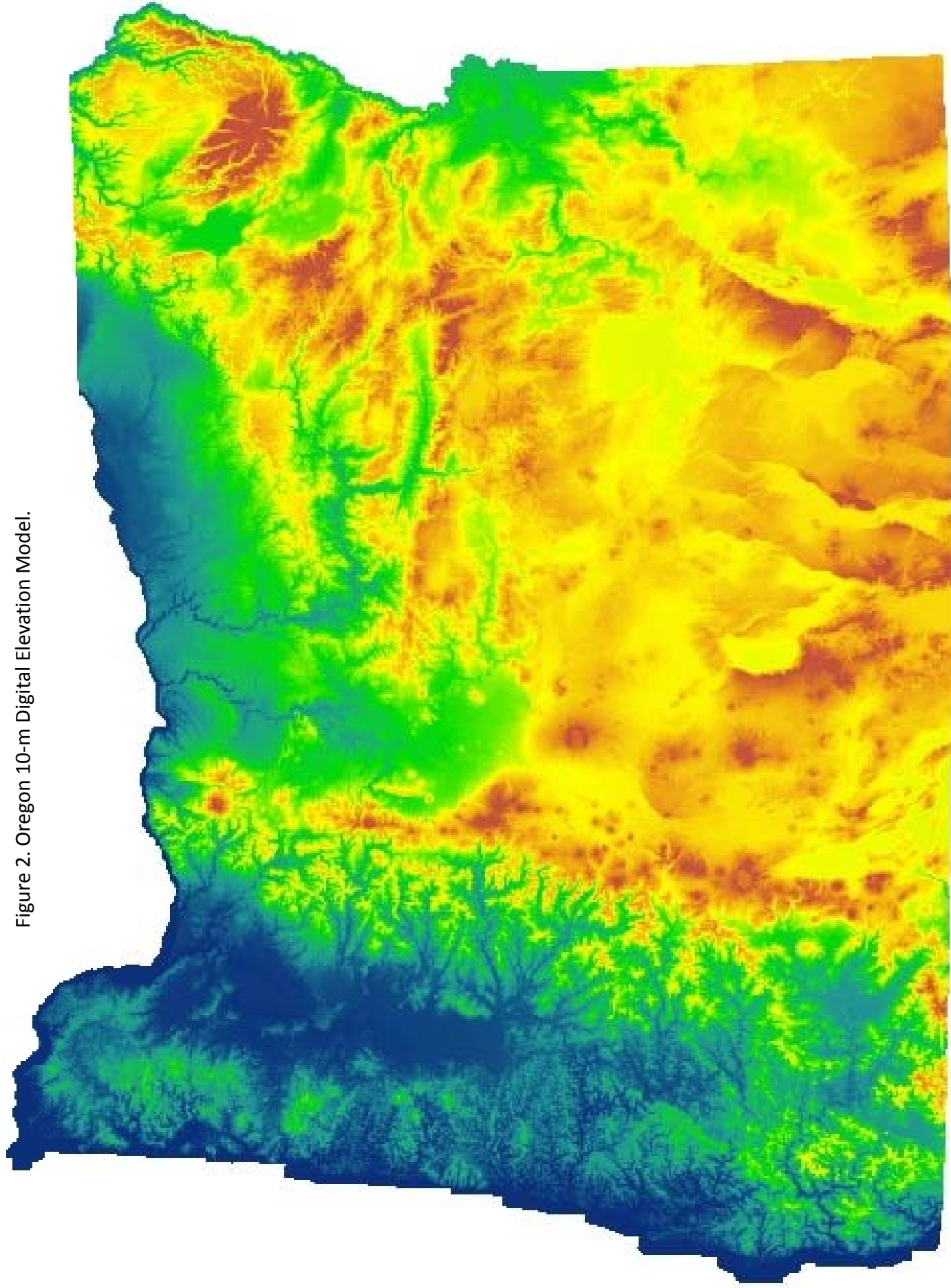
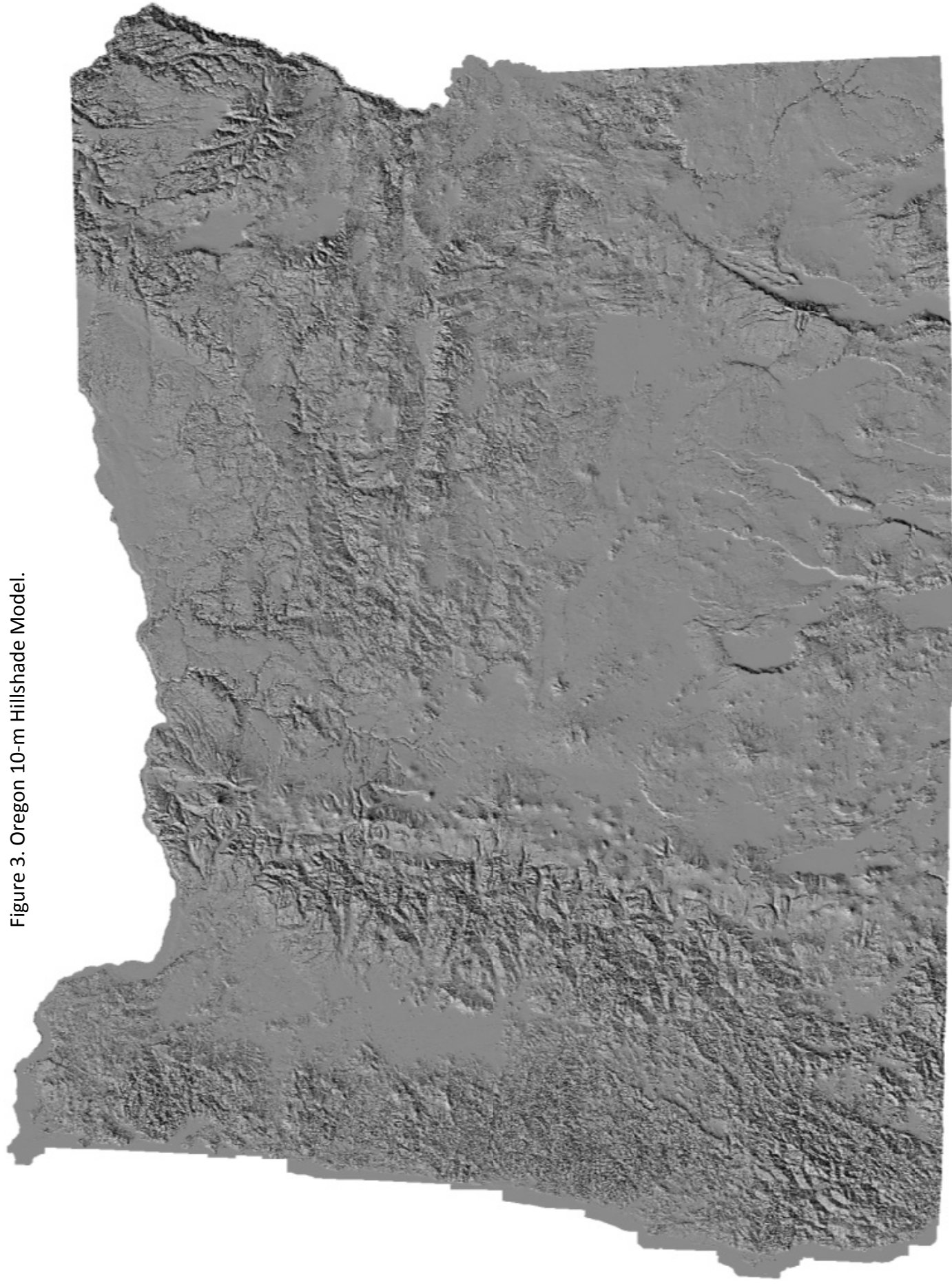


Figure 3. Oregon 10-m Hillshade Model.



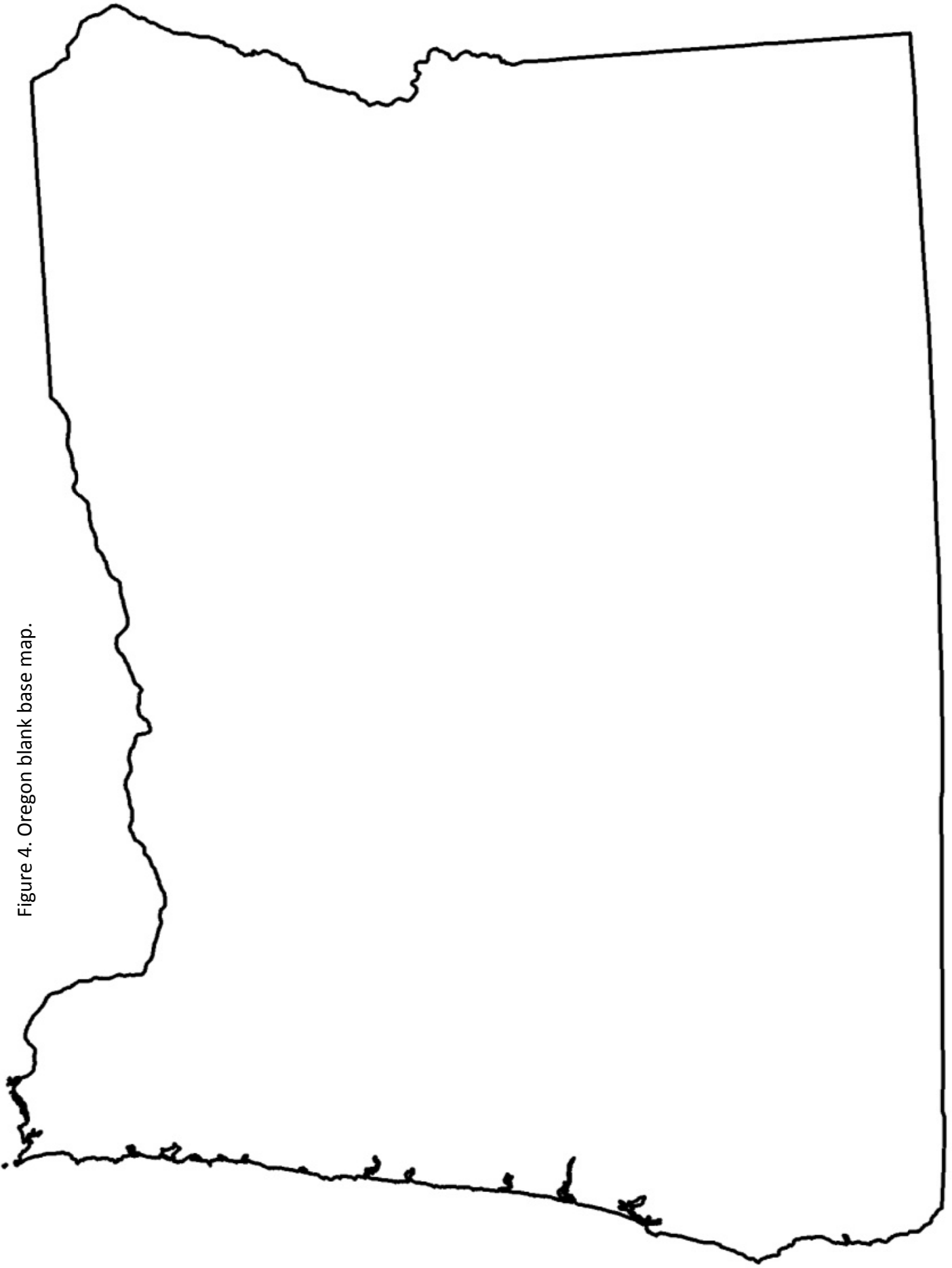


Figure 4. Oregon blank base map.