Handout M14-2. Trees in a Changing Environment

Name: ________________

Figure 1. AVERAGE TEMPERATURE MAP.

Negative values indicate that the years 2011-2014 were cooler than the 20th century average. Positive values indicate that the years 2011-2014 were warmer than the 20th century average.

Source: https://www.ncdc.noaa.gov/cag/statewide/time-series/. This is an interactive web page with a huge amount of climatological information, both current and historical. The map shown here was obtained in February 2018. Consult the website to find information on more climate variables and on specific states or regions.

Figure 2. CHANGE IN ANNUAL PRECIPITATION, 1958 TO 2008.

While precipitation over the United States as a whole has increased, there have been important regional and seasonal differences. In the Northwest, decreases have occurred in all seasons except spring.

Use the maps on the previous page to answer these questions:
1. Figure 1 compares average temperatures in recent years with those of the 20th century. Circle the region that extends from the northern Rocky Mountains in the east across the North Cascades in the west. Does the map suggest that the climate in this region is getting hotter or colder? __________

2. Figure 2 shows the trends in average precipitation over the past 50 years or so. Circle the area from the northern Rocky Mountains to the North Cascades. Does the map suggest that the climate in this region is getting wetter or drier? __________

Use the half-page handout or the feltboard model of forest communities to answer these questions:
3. Suppose you are a western larch living at 1400 m elevation, and your home gets a lot drier. Name one tree species that will probably thrive in your community over the next 100 years:
   ________________

4. Suppose you are a whitebark pine living at 1900 m elevation and your home gets a lot hotter. Name one tree species that may become part of your community:
   ________________

5. Is whitebark pine likely to survive and reproduce better or worse in a hotter environment at 1900 m? Explain:
   _____________________________________________________________________
   _____________________________________________________________________

6. Suppose you are a subalpine fir living at 1500 m elevation, and your home gets drier and hotter. Name one tree species that will probably join your community – or will grow better, if it is already there.
   ________________

7. Suppose you are an Engelmann spruce growing at 1600 m elevation, and your home gets both drier and hotter. Name one tree species that will probably be unable to persist in your community: ________________

8. Is Engelmann spruce likely to survive and reproduce better or worse in a drier, hotter environment at 1600 m? Explain:
   _____________________________________________________________________
   _____________________________________________________________________