

Handout H15-1: Modeling Forests of the Sierra Nevada

Use the data in the table below to illustrate the environmental conditions in which each species can grow and thrive: Plot the data on the graphic on the next page. As an example, the environmental conditions for California black oak are already shown on the graph. Graph the conditions for the remaining 11 species like this:

1. Under “Key,” use different-colored pencils or markers to write the names of all species in the table (except California black oak, since it is already done).
2. For each species:
 - On the model, figure out which moisture line to use for the species (dry, medium or very moist). If you think it should be in between, *lightly* sketch the line where it should go.
 - On the appropriate moisture line, use a dot to mark the lowest and highest elevations for the species. If the table lists an elevation below the range of Sasquatch Peak, estimate where the lowest mark should be.
 - About midway between these two dots, move to the left and right of the moisture line to mark the approximate driest and wettest conditions for the species.
 - Using the color that matches this species in your key, draw an oval shape connecting the 4 dots. This shows the environmental conditions in which the species can live and thrive.

Ecological conditions for 12 tree species: Ecological conditions best for tree species on Sasquatch Peak, a fictitious mountain in the northwestern Sierra Nevada. The summit of the peak is at 3,500 m. The valley bottom is at 900 m elevation, but some species live and thrive at lower elevations than this.

Tree Species	Elevations where species is most common (m above sea level)*	Lives best in*
Baker cypress	1900-2100	Dry sites
Example: California black oak	500-1800	Medium sites
Canyon live oak	500-1300	Medium sites
California red fir	1900-2600	Medium sites
Douglas-fir	700-1700	Medium sites
Incense-cedar	700-2000	Dry to medium sites
Jeffrey pine	1500-2500	Dry to medium sites
Ponderosa pine	500-1700	Dry to medium sites
Quaking aspen	1600-2600	Very moist sites
Sierra lodgepole pine	1900-3400	Dry to moist sites
Sugar pine	1000-2100	Medium to moist sites
White fir	1200-2100	Medium sites

* Sources: Fire Effects Information System (<https://feis-crs.org/feis/>)

Burns, Russell M.; Honkala, Barbara H., tech. coords. 1990. *Silvics of North America. Volume 1. Conifers*. Agric. Handb. 654. Washington, DC: U.S. Department of Agriculture, Forest Service. 675 p.

Burns, Russell M.; Honkala, Barbara H., tech. coords. 1990. *Silvics of North America. Vol. 2. Hardwoods*. Agric. Handb. 654. Washington, DC: U.S. Department of Agriculture, Forest Service. 877 p.

Sasquatch Peak Forest Model

Name: _____

The vertical axis shows elevation, which is closely related to temperature. The horizontal axis and diagonal dashed lines show moisture on the site, from dry (very little moisture

