Phenophase of the Black Oak, Alder and Ponderosa Pine of the FRC Campus!

Denise Gibson

Table 1: Phenophase observations sof three species

DATE	SPECIES	SPECIES	SPECIES
	Black Oak (*Quercus Kelloggii*)	Alder (*Alnus ssp.*)	Ponderosa Pine (*Pinus Ponderosa*)
3-11-21	.5 cm 	.3 cm 	1 cm 
3-18-21	.5 cm	.7 cm	1.2 cm
4-8-21	.7 cm	1.5 cm	1.5 cm
4-22-21	3 cm 	1.5 cm 	2.5 cm 
4-28-21	3.5 cm	4 cm	3 cm
5-6-21	4.1 cm	4.3 cm	3.4 cm

This table shows the phenophase of the Black Oak, Alder and Ponderosa Pine all in the same location at FRC compass.

INTRODUCTION: "Phenology is the study of the timing of natural events. For many years, people have noted the dates when migratory birds return, the first flower dates for plants, dates of ice-on and ice-off of lakes and dates of first sightings of mammals after winter hibernation."(Pheno-what?, n.d.) It has been noticed that the last 70-80 years, the budbursts, hybrination etc has been happening about 3 weeks sooner in the Spring and later in the Fall. Indicators are pointing to climate change. (Pheno-what? n.d.). I chose to evaluate three different species within one area. The Ponderosa Pine, Black Oak, and the Alder. All three were within the same area;however, the soil, amount of sunlight, external influences were all different. The Ponderosa Pine was next to a building and at times had less sunlight than the black oak and alder. The alder was on a bank of a riparian area, and received water and sunlight all day. The black oak was on a southwesterly slope above the other two species, and received sunlight all day, but no waterways close by. I was curious if these three different species would grow at the same rate.

HYPOTHESIS: My hypothesis is that all three plant species will "budburst" at the same time, because they are all within the same area; however, will not continue to grow at the same rate, due to the differences within the plant,it's needs (water, sunlight, process to reproduce, etc.), and the location of each plant and the external influences.

METHOD: I observed and measured weekly at approximately the same time (1300 hours) on the same day of the week (Thursday). I measured from the main stem on node up to the tip of the bud/leaf.

RESULTS: There was little change on all three plants from 3-11-21 to 4-8-21. Then around 4-28-21, the plants grew faster than the previous weeks. The Alder appeared to grow at a faster rate than the other two trees (Table 1).

DISCUSSION: I originally predicted that the plants would bud at the same time, but wouldn't continue to grow at the same rate. This study supports the first part of my hypothesis; however, the second part didn't continue as I expected. Some variables which may have influenced the growth may be climate change patterns, use of herbicides on or around the plants, and/or position of the plants around a water source and sunlight, as stated above.

REFERENCES:

Phenology,(n.d.). https://acpermaculture.wordpress.com/2013/02/16/phenology/
Phen-"what?" Phenology Project, (n.d.). https://lnr.fcpotawatomi.com/phenology/