So we showed that on survivor, the contestants were voted off based on their abilities, really their lack of abilities, with certain challenges. That's a type of variation. Each person had different skills. Can anyone give me an example of variation out here?

When people think of variation, they often think of large scale variation, trees are different from birds are different from chipmunks. But when scientists look at variation, we often are looking at a much finer scale, actually, a scale much more like that on survivor. Whats the difference between these two types of trees? What differences are there between these two trees of the same species? And how might those tiny differences impact their survival. Lets look for some of these smaller variations, and try to think of scenarios where these differences are important. Think about weeds for a second. In general, weeds flower much earlier than their ancestors AND plants they invade. How would variation in flowering time help them?

These small variations are the types of traits that natural selection acts on. If we have a sudden cold snap, the plants that are flowering now might not have seed, but the ones that haven't flowered yet probably will. Or if the cold snap is next month, these will have set seed and the rest will be in flower and not make it. If we start having a cold week the last week of June every year for a few years, the plants that are flowering now will consistently not set seed; they'll be voted out of the gene pool, and the ones that are ready to flower in early July will pre-dominate. Overtime, the only plants left will be the ones that flower in early July, and they will be "locally adapted". That means that this same species in tennessee will still flower in late June, but this little population will have adapted to the summer cold snap and will have a different flowering time.

So now we've seen the kind of variation that natural selection uses, lets go in and do an experiment to see how natural selection 'votes'