

### Clip #3 Transcript: About CoAdapTree

CoAdapTree is a large project and a collaboration across several different labs in Canada and its major funder is Genome Canada, with funding from a lot of other sources like Genome BC, Genome Quebec, and from the Ministry—so lots of funding sources going into this project and lots of people involved. And the collaborations include scientists from across disciplines, so experts in **population genetics**, **forestry genetics**, **physiologists**, and plant and forest **pathologists**.

In addition we have social scientists on the group who are examining the perceptions of the techniques that we might apply based on the research from this project. And the research from this project is looking at both climate adaptation in several native tree species, focused on conifers. There's lodgepole pine, Douglas fir, jack pine, and then species I work on: western larch. Other than my species, the other three have wide ranges, and Doug-fir and lodgepole are economically important particularly in BC. Western larch also does have some economic importance, but what's interesting and makes it kind of contrasting with those other species is that it has a current, more narrow range, and then also this different life history where it sheds its leaves unlike the other evergreen species.

So with all those species that we're looking at climate adaption, we can start to look for if there are general patterns of climate adaptation among the four, or if they have unique patterns. So that's a part of the idea of comparing different species and why several different species are involved. The other thing is that they're in pairs of fairly closely related—for conifers—species. So Douglas fir and western larch are **sister genera**, and then jack pine and lodgepole are more closely related. So we can look for patterns based on how closely related in an **evolutionary tree** too.

There's other aspects of the project that look at **disease resistance** in addition to climate adaptation in a couple of these species—mine [western larch] is not included in that but Douglas fir and lodgepole pine [are included]. So the research, the climate adaptation research, and the pathogen side are all with the aim of developing tools towards forest management in the future because climate change is going to affect climate adaptation of populations of these species but also change the relationships with **pathogens**. We see that as an example with like bark beetles, and how devastating they've been in BC forests.

For CoAdapTree, we also have people on the ground—**tree breeders**, people doing the forest management, that are also involved and will use this information. As part of my project there's **breeding families**—families that have already been under **selection** in the breeding program in BC—that we are testing also for **climate adaptive traits**.

