

Clip #2 Transcript: Western Larch Importance & Genomics Terminology

Western larch is an interesting species. It is a native species to British Columbia, but it currently doesn't have a very broad range throughout British Columbia where it lives now. However, when using **models**, what they suggest in terms of climate change in the future is that western larch will have a much broader range of **suitability** of where it can grow based on climate in BC.

So it is a candidate for an example of species of high potential for this approach called '**assisted migration**' or '**assisted gene flow**'. Assisted migration is different from assisted gene flow.

Assisted gene flow is the idea that you can move [genetic] material from one **population** to a different population, and you might want to do that to increase the **resilience** of a population to future climates. So a population from the south perhaps that **adapted** to drier conditions, it may be useful to move some of those sources further north as the north becomes drier as well. So that's assisted gene flow.

Assisted migration is the idea that perhaps it might be also a good idea to think about moving some species beyond their current ranges because the current range is just a snapshot in time of where a species is currently living. They've migrated over the course of long history, **evolutionary history** so we're just seeing a snapshot now. And the idea with assisted migration is the pace of climate change is so rapid, that it may be a good idea to start considering moving some species beyond where we see them planted now because the climate is changing so much.

So some of the approaches include assisted migration/assisted gene flow, and these are newer management approaches that the community as a whole—and forestry as a whole—needs to weigh the risks and the benefits of. And so the **social scientists** are examining the perceptions of the risk and the benefits of these approaches to **forest management** under climate change.

Climate adaptation is how well a population or organisms can respond and thrive in their native environment or native climate. And when we look at patterns of climate adaptation across a species, we might see that—so for example in western larch, the southern end of the range is drier than the northern end of the range. And so we might find that there are traits related to drought tolerance for example, that are more prevalent—so if a trait is related to drought tolerance, it might be higher in southern populations—more present. And then on the northern end, climate adaptation might look like resistance to frost. So these are some of the traits we look at in association with climate adaptation, and on the genomic end we look for variation in the genome associated with variation in climate across the range.

