

HOT ISSUE: Should we deliberately move species?

July 20 2009, By ALICIA CHANG , AP Science Writer



FILE - In this Feb. 15, 2000 file photo, a giant Sitka spruce stands tall near Seaside, Ore., Feb. 15, 2000. Researchers will uproot moisture-loving Sitka spruce and Western redcedar that grace British Columbia's coastal rainforests and drop their seedlings in the dry ponderosa pine forests of Idaho. Scientist are planting trees that don't certain climates in a bold experiment to move trees threatened by global warming into places where they may thrive amid a changing climate. (AP Photo/Jeff Barnard)

(AP) -- On naked patches of land in western Canada and United States, scientists are planting trees that don't belong there. It's a bold experiment to move trees threatened by global warming into places where they may thrive amid a changing climate.



Take the Western larch with its thick grooved bark and green needles. It grows in the valleys and lower mountain slopes in British Columbia's southern interior. Canadian foresters are testing how its seeds will fare when planted farther north - just below the Arctic Circle.

Something similar will be tried in the Lower 48. Researchers will uproot moisture-loving Sitka spruce and Western redcedar that grace British Columbia's coastal rainforests and drop their seedlings in the dry ponderosa pine forests of Idaho.

All of this swapping begs the question: Should humans lend nature a helping hand?

With global warming threatening the livelihoods of certain plants and animals, this radical idea once dismissed in scientific circles has moved to the forefront of debate and triggered strong emotions among conservationists.

About 20 to 30 percent of species worldwide face a high risk of becoming extinct possibly by 2100 as global temperatures rise, estimated a 2007 report by the Nobel-winning international <u>climate change</u> panel. The group noted that current <u>conservation</u> practices are "generally poorly prepared to adapt to this level of change."

Deliberating moving a species has long been opposed by some, who believe we should not play God with nature and worry that introducing an exotic species - intentionally or not - could upset the natural balance and cause unforeseen ripple effects. It has happened before with dire results. Two decades ago, <u>zebra mussels</u> were accidentally introduced into the Great Lakes and millions are now spent every year removing the pest from water pipes.

Others counter that given the grim realities of a warming planet, it would



be irresponsible not to intervene as a conservation strategy. Otherwise, trees may suffer from ravaging disease epidemics while critters unable to head north may find themselves trapped in a declining landscape.

"A tree that we plant today better damn well be adapted to the climate for 80 years, not just the climate today," said Greg O'Neill, a geneticist with the British Columbia Ministry of Forests and Range. "We really have to think long-term."

O'Neill is heading the government-funded experiment that will transform certain North American forests into climate change laboratories. The large-scale, first-of-its-kind test involves purposely planting seeds from more a dozen timber species outside their normal comfort zone to see how well they survive decades from now.

It's more than just a brainy exercise. The findings are expected to guide the British Columbia government on forest management policies. While the experiment deals with moving seeds long distances into unaccustomed climates, O'Neill said any real-life action will not be as drastic.

Outsiders are also keenly watching the experiment as a test case for what is professionally known as "assisted migration."

"We'd all prefer species to move naturally," said Duke conservation biologist Stuart Pimm. But "sometimes you just can't get there from here. Some species are going to be isolated and they're going to get stuck."

The notion of relocating species as a pre-emptive strike against climate change has been largely theoretical. In recent years, some groups have tried assisted migration on a limited basis, most notably the effort by volunteers who last year planted seedlings of the endangered Torreya



tree found in Florida to the cooler southern Appalachians.

The Canadian experiment currently under way will cover a broad swath, with tree plantings dotting the Yukon near Alaska to southern Oregon.

Past warmings have forced species to migrate to survive without human help. While some have learned to adapt to new surroundings, other have gone extinct. Faced with the possibility of much more rapid climate change, scientists say, some species may not be able to move fast enough to their new destinations and may need a little power boost to preserve biodiversity.

In North America, some critters have already started their march north. The Edith's checkerspot butterfly, which vanished from its southern range, is now fluttering 75 miles higher in elevation. Red foxes have encroached farther into northern Canada and evicted the arctic foxes.

On the plant side, spruce forests are invading the Arctic tundra and impacting caribou and sheep that live there. In the past century, aspen trees in Colorado have moved into the cold-loving spruce fir forests.

How trees will fare in a warmer world is a concern because they tend to be less flighty than animals. Trees depend on wind and pollinators to spread their seeds. And once a tree is planted, it's harder to move it.

Last year, the British Columbia government took the first steps toward ensuring that trees in the province are adapted to future climates by relaxing its seed rules for timber companies when they replant on logged land. Seeds of most tree species can now be planted up to 1,600 feet higher than their current location.

The government's latest experiment will study how humans can help trees move to more northerly spots where they do not currently grow, but



may find themselves existing there years from now. It will not deal with introducing foreign tree species, O'Neill said.

This spring, crews fanned across rugged mountains and began the first dozen plantings on cleared forest land in British Columbia's southern interior and on a private plot near Mount St. Helens in Washington state.

Each test site contains some 3,000 seedlings, on average a foot tall, planted side-by-side on five acres. Fluorescent pin-flags and aluminum stakes dot the corners so that scientists can come back every five years to document their health.

The project will eventually include 48 plots around British Columbia, Washington state, Oregon, Montana and Idaho. It will test the ability of 15 tree species to survive in environments colder and hotter than they're used to.

O'Neill knows that some trees will die and others will go through erratic growth cycles. In fact, he estimates about 50 percent of the plantings may die, but he needs to collect the data to get an idea of how much they can tolerate.

"It will take several extreme climatic events to find out the winners and losers," he said.

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