Plants move up mountain as temps rise, study shows

By ALICIA CHANG, LOS ANGELES TIMES
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Striking new research in the Southern California mountains suggests recent warming is behind a massive die-off and rapid migration to higher ground by nine different plants - from desert shrubs to white firs.

Within 30 years, most had moved to elevations 200 feet above their previous growth range. The findings provide a glimpse of what could happen to the world's vegetation as the Earth faces inevitable global warming.

Scientists have long warned that human-caused climate change threatens to turn plants into refugees as they migrate to higher, cooler spots to survive. The latest study is the first to physically measure changes in plants' locations in connection with regional warming - whether man-made or part of a normal cycle - over the past three decades.

"The speed (of the plant movement) is alarming," said ecologist Travis Huxman of the University of Arizona in Tucson, who did not participate in the study. "It means that we'll likely see vegetation shift a lot faster than we might think."

However, at least one expert suggested that prolonged drought - not climate change - could be the cause of the die-off and migration.

Researchers from the University of California, Irvine in 2006 studied the 10 most common plant species in the Santa Rosa Mountains east of Los Angeles at different elevations. With a measuring tape, they recorded the type of plant every 400 feet from sea level to over 8,000 feet, and compared the distribution to a survey that was done in the same area in 1977.

The Santa Rosa Mountains host diverse habitats, including conifer forest, chaparral, woodland and desert scrub. Since the 1970s, the region has seen average temperatures rise 2 degrees as well as extended periods of drought.

To scientists' surprise, they found scores of dead trees and shrubs at lower altitudes, but flourishing plants uphill. The habitats of nine of the 10 plant species studied crept an average 213 feet up the mountain face, the study found.

"The plant death was striking, and occurred in most species," said study co-author Michael Goulden of UC Irvine. "The occurrence of plant death was obvious to everyone living in that area."

The results appear in Monday's issue of the journal Proceedings of the National Academy of Sciences.

The findings counter the idea that fast-growing grasses are more flighty than large woody trees since the various plant species edged a similar distance upward in the study, scientists say.

U.S. Geological Survey research scientist Jon Keeley said the study provides convincing evidence of plant migration. But he said another factor, prolonged drought, rather than rising temperatures may be the driver behind the move.

"Drought certainly stands out as a real likely explanation. It is an extremely severe event" that could wipe out plants at lower elevations, he said.

Goulden of UC Irvine concurred that the 1999-02 severe drought can be partly blamed for killing plants, but he said drought alone cannot explain the uphill movement.

The researchers ruled out air pollution as a potential cause since they could not find signs of ozone damage to the plants. They also ruled out wildfire since the last major blaze to sweep through occurred more than a half century ago.

Though the researchers could not determine if the hotter temperatures in the region were due to greenhouse gas emissions or part of a natural warming cycle, they say the widespread plant death and migration observed is similar to global warming predictions.

NATION

President pursues big changes for environmental law

Agencies may weigh projects' effects on protected species

By Juliet Eilperin, THE WASHINGTON POST
Washington Post and San Diego Union-Tribune Tues., August 12, 2008

WASHINGTON – The Bush administration yesterday proposed a regulatory overhaul of the Endangered Species Act to allow federal agencies to decide whether protected species would be imperiled by agency projects, eliminating the independent scientific reviews that have been required for more than three decades.

The new rules, which will be subject to a 30-day comment period, would use administrative powers to make broad changes in the law that Congress has resisted for years.

Under current law, agencies must subject any plans that potentially affect endangered animals and plants to an independent review by the Fish and Wildlife Service or the National Marine Fisheries Service.

Under the proposed rules, dam and highway construction and other federal projects could proceed without delay if the agency in charge decides they would not harm vulnerable species.

In a telephone call with reporters yesterday, Interior Secretary Dirk Kempthorne described the rules as a “narrow regulatory change” that “will provide clarity and certainty to the consultation process under the Endangered Species Act.”

Environmentalists and congressional Democrats blasted the proposal as a last-minute attempt by the administration to bring about dramatic changes in the law.

For more than a decade, congressional Republicans have been trying to rewrite the act, which property owners and developers say imposes unreasonable economic costs.

“I am deeply troubled by this proposed rule, which gives federal agencies an unacceptable degree of discretion to decide whether or not to comply with the Endangered Species Act,” said Rep. Nick J. Rahall, D-W.Va., chairman of the House Natural Resources Committee, who asked for a staff briefing before the proposal was announced but did not receive one. “Eleventh-hour rule-makings rarely, if ever, lead to good government. This is not the type of legacy this Interior Department should be leaving for future generations.”

Bob Irvin, senior vice president of conservation programs at the advocacy group Defenders of Wildlife, questioned how some federal agencies could make the assessments, since most do not have wildlife biologists on staff.

“Clearly, that's a case of asking the fox to guard the chicken coop,” Irvin said, adding that the original law created “a giant caution light that made federal agencies stop and think about the impacts of their actions. What the Bush administration is telling those agencies is they don't have to think about those impacts anymore.”

Dale Hall, who directs the Fish and Wildlife Service, said the move would not apply to major federal projects and would give his agency more time to focus on the most critically endangered species, rather than conducting reviews of projects that pose little threat.

The new rules also would limit the impact of the administration's decision in May to list the polar bear as threatened with extinction because of shrinking sea ice.

At the time of that decision, Kempthorne said he would seek changes to the Endangered Species Act on the grounds that it was inflexible, adding that it had not been modified significantly since 1986.

In a statement yesterday, the Interior Department declared that even if a federal action such as the permitting of a power plant would lead to increased greenhouse gas emissions, the decision would not trigger a federal review "because it is not possible to link the emissions to impacts on specific listed species such as polar bears."

Kempthorne said the new regulations included that language "so we don't inadvertently have the Endangered Species Act seen as a back door to climate change policy that was never, ever intended."

Prescriptions for Health, the Environmental Kind

By Amanda Schaffer
N.Y. Times, Tuesday, Aug. 12, 2008

In a bright studio at New York University, Natalie Jeremijenko welcomes visitors to her environmental health clinic. She wears a white lab coat with a rotated red cross on the pocket. A clipboard with intake forms hangs by the door.

Inside, circuit boards, respirators, light bulbs, bike helmets and books on green design clutter the high shelves. In front of a bamboo consultation desk sits a mock medicine cabinet, which turns out to be filled with power tools.

Dr. Jeremijenko, an Australian artist, designer and engineer, invites members of the public to the clinic to discuss personal environmental concerns like air and water quality. Sitting at the consultation desk, she also offers them concrete remedies or "prescriptions" for change, much as a medical clinic might offer prescriptions for drugs.

"It's a widely familiar script," said Dr. Jeremijenko, 41, who has a doctorate in engineering and is an assistant professor of visual art at N.Y.U. "People know how to ring up and make an appointment at their health clinic. But they don't really know what to do about toxins in the air and global warming, right?

"So the whole thing is how do we translate the tremendous amount of anxiety and interest in addressing major environmental issues into something concrete that people can do whose effect is measurable and significant?"

Visitors to the clinic talk about an array of concerns, including contaminated land, polluted indoor air and dirty storm-water runoff. Dr. Jeremijenko typically gives them a primer on local environmental issues, especially the top polluters in their neighborhoods. Then she offers prescriptions that include an eclectic mix of green design, engineering and art — window treatments, maybe, or sunflowers, tadpoles or succulents.

"People are frustrated by their inability to cope with environmental problems in their apartments and their neighborhoods," said George Thurston, a professor of environmental medicine at New York University School of Medicine. Dr. Jeremijenko, he continued, "provides a service that's needed, educating people about what they're up against and showing them that they can do something themselves while waiting for larger societal solutions."

Dr. Jeremijenko has worked with scores of individuals and community groups since starting the clinic last fall. “I call them impatients,” she said — meaning that they don’t want to wait for legislative action.
She holds daily office hours at N.Y.U., but also runs periodic off-site clinics at sites around the city — “like the M*A*S*H field offices,” she said.

For instance, she met with “impatients” on the edge of the East River and took some of them out on a float made of two-liter soda bottles connected to a flexible polycarbonate sheet. Micah Roufa, who recently graduated from architectural school, was one of those present, though he said he chose to remain on solid ground.

Mr. Roufa owns a vacant lot in St. Louis that is contaminated with low levels of lead. He said he wanted to remedy that problem while using the space in a creative way and raising awareness about lead poisoning in the neighborhood.

Dr. Jeremijenko suggested planting a grid of sunflowers, along with a chemical agent called EDTA, to draw lead out of the soil. (EDTA is used to bind metals, making it easier for them to be taken up by plants; scientists caution that the approach requires technical care, because if too much of the chemical is added, a contaminant could migrate to neighboring property.)

Mr. Roufa planted the sunflowers this summer within an artistic grid of steel bars and glass orbs. “She has been a great guide and an inspiration,” he said.

Of all the concerns Dr. Jeremijenko hears about at the clinic, she said indoor air quality tops the list. For common pollutants like formaldehyde, benzene and toluene she typically prescribes the copious use of houseplants, which have been shown to absorb some chemicals.

With the designers Will Kavesh and Amelia Amon, she has also developed a system that uses solar energy to power customized L.E.D. lights, which promote plant growth while providing a light intended for human use. The sun’s energy is captured by a “solar awning,” which is a stretch of glass, fabric or stainless steel that can be fitted to an apartment or office window.

And Dr. Jeremijenko has a prescription for storm-water runoff, which can cause sewers to flood and can increase pollution in rivers: putting small plots of greenery, including mosses and grasses, in no-parking zones around the city. One such temporary plot, on Stuyvesant Street in the East Village, was called a “butterfly truck stop,” with plant life specifically designed to attract butterflies.

In past projects, Dr. Jeremijenko has coupled art and environmental activism. During the Republican National Convention in 2004, she organized a group of bicyclists to ride around New York wearing air-filtering masks, as an ironic comment on the government’s Clear Skies Initiative.

In 2006, as part of the Whitney Biennial, she installed a series of bird perches in the museum’s sculpture court. When birds landed on the perches, they set off computer sound files with comments on the interdependency of birds, other animals and people.

Dr. Jeremijenko’s work occupies a niche “between popular culture and high art, between art, science and engineering,” said Amanda McDonald Crowley, executive director of Eyebeam, an art and technology center in Chelsea. “In a sense it’s performance, in a sense it’s awareness raising, and in a sense it empowers an audience to take action.”

In March, Dr. Jeremijenko had environmental clinic hours at Eyebeam, where she distributed tadpoles named after government officials whose decisions affect water quality.

“Tadpoles are exquisite sensors of water quality,” she said, adding that she had already named a tadpole after Commissioner Pete Grannis of the New York State Department of Environmental Conservation.
“I had it in a sample of water from the Bronx River and, unfortunately it died,” she said. “But we’re going to resurrect him.”

Charles M. Marcus, professor of physics and director of the Center for Nanoscale Systems at Harvard, is a longtime admirer of Dr. Jeremijenko’s work. “So much of what environmentalism involves is things you shouldn’t do, and that can be very unsatisfying,” he said. “She’s addressing that head-on.

“She seems to be saying: ‘If you’re like me and you consider action and anxiety to be poles between which we navigate, then I can help get your hands dirty and I can help get you involved in doing something that will help with your mind and will help with the world.’ ”

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Our View: The 'trifecta' of Valley issues

SB 375 would deal with the challenges of transportation, housing and climate change.

California has struggled for decades with how to marry its environmental values with its transportation needs while honoring the traditions of local control and building adequate housing.

Until now, it's been failure on nearly every front.

Sprawl has been the name of the game, largely because builders find it easier and cheaper to build on the periphery, resulting in development leapfrogging its way out of town. Home dwellers end up commuting long distances to work, adding to air pollution and congestion and forcing the state to spend highway dollars to clean up the mess.

The sacred cow of the California Environmental Quality Act also distorts the picture. Opponents of affordable housing and infill projects have used CEQA to block various in-town developments. No wonder many builders choose to stay on the periphery.

State Sen. Darrell Steinberg, D-Sacramento, has crafted an agreement that tackles these multiple dysfunctions. Senate Bill 375, two years in the making, has received endorsements from an unlikely coalition that includes environmental groups, builders, local government leaders and others.

Some are calling it the state's most significant land-use bill since passage of the California Coastal Act in 1976.

Under the legislation, each metropolitan region would have to adopt a "sustainable community strategy" to encourage compact development, transit and reduction of greenhouse gas emissions.

This is at the heart of the San Joaquin Valley Blueprint movement under way in Merced, Stanislaus and San Joaquin counties.

The Air Resources Board then would provide each region with targets for reducing emissions, and would determine if each region is on track to meet the targets.

Regions wouldn't be required to meet the targets, but they'd have a strong incentive to do so. Those with effective blueprint-style plans would get a leg up in obtaining some of the $5 billion in transportation funds the state disburses yearly.

Builders also would get relief from certain CEQA reviews if they built projects consistent with the strategies. In addition, cities would get extra time -- eight years instead of five -- to update housing plans required by the state. They'd also have to zone land for housing within three years.

SB 375 is complex and must undergo hearings and analysis in the Assembly. From the looks of it, however, incoming Senate leader Steinberg has managed a breakthrough on managing the state's growth that doesn't impinge on local control.

Builders, who long have opposed regional planning but are looking at a future of $5 gasoline, say they like the bill because it limits their risk of litigation.

"We get more certainty in the process," said Ray Becker, chairman of the California Building Industry Association.

Many environmentalists also are enthusiastic. Tom Adams, president of the California League of Conservation Voters and a force in drafting this bill, said Steinberg had managed a "trifecta of the impossible" by dealing with the challenges of transportation, housing and climate change.

The Assembly now needs to examine the finer details. Barring surprises, they should send it to the Senate for concurrence, and then on to the governor's desk.