

To read Andrew Nikiforuk's "Empire of the Beetle" means recognizing the destruction that "a little bit of warming" has wrought in the West. "In Colorado, Wyoming, and South Dakota an average of 100,000 beetle-killed trees fall down every day," states the author. Yet "salvage logging" is no answer: British Columbia found such timber management a disaster for the state's economy no less than its ecology, on par with forestry's fire suppression.

By 2007, beetle kill in Yellowstone Park's whitebark forests had reached "startling extremes" and in 2010, a team of scientists released a study on the collapse of the pine community at high elevations in Greater Yellowstone. "The survey indicated that more than 50 percent of high country was dead. Overall, 82 percent showed 'significant mortality'," reports Nikiforuk.

"Climate change is here and right in our faces," he quotes one team member. "You don't have to go to the polar ice caps. All you gotta do is look up the mountain."

The study investigated pine deaths in 2,500 drainage basins over an area the size of South Carolina. Yes, there still exist "islands of living whitebarks" in the Tetons, the Beartooth Plateau, the Wind River Range, but "outbreaks are spreading much faster than the models predicted, and the consequences appear more severe than simulations indicated."

Without stands of pines acting as a fence, winter snowpacks shrink to small. Without the pines' protective shading, the snow melts earlier in the spring, giving rise to flash floods. In late summer the mountains deliver less coolness; hence, the Yellowstone and Madison waters get too hot to sustain cold-loving trout. The aridity, in turn, invites more insects and diseases. What lyme-bearing ticks are to the Wisconsin forests, pinebark beetles are to the Wyoming woods.

The Yellowstone epidemic spread to British Columbia, where the insects devastated 85% of whitebarks only to move on to Alberta. To make matters worse, beetles have also begun to attack the high-country oyamel forests of central Mexico,

where countless firs, already stressed by drought and pollution, have fallen victim. Those dying are the trees that provide critical winter shelter for the monarch butterfly. “Every year these insects fly two thousand miles to pollinate plants and wildflowers throughout the West, including Yellowstone.” The migration of the monarch has become “an endangered natural phenomenon” that “could go down the drain,” writes Nikiforuk.

Yet the beetle epidemics, notes the author, are merely drawing attention to “great wounds already inflicted by human tree killers.” Nikiforuk fingers human folly going back to 1880s indiscriminate logging. A forest monoculture eventually replaced some of the old growth. Fire suppression added to the problem in that it allowed even-aged trees to grow into vulnerable forests. Beetle “tsunamis” have been so vast, they’ve shown up as clouds on airport radars.

In their natural cycle, these insects serve as a managers of tree growth, for they take out old, stressed trees that can no longer produce the resin to fight off their attackers. But these are no normal times. A warming climate allows beetles to reproduce at twice their previous rates; hence, hungry insects now attack healthy and even immature stands in such numbers, the trees cannot fend them off. Beetle kills have collapsed pine and spruce forests all the way into New Mexico. Alaska was but the first in the beetle chain of conquests.

Alaska became ground zero for “the climate-change trigger.” Its beetle-killed forests equal “a 2.33-mile-wide strip from Washington, D.C., to Los Angeles” or “an area larger than the entire state of Connecticut.” Yet drought, not beetle kill, presents the true hazard, states Ed Berg, an Alaskan ecologist who served at the Kenai National Wildlife Refuge where beetle chewed their way through “an area twice the size of Yellowstone National Park.” Berg warns that “A drought-stressed live spruce next to your house is every bit as flammable as a beetle-killed spruce.”

Although the deaths of millions of trees generated a great deal of grief among landowners in Alaska and the Yukon, most media ignored the disaster, writes Nikiforuk

in his chapter on the Nordic hemisphere, though the boreal “covers 15 percent of the earth and does a lot of oxygen making and carbon storing.”

Because of global warming, the beetle distribution shifts ever northward into mountaintops. It’s estimated that by 2070, beetle infestations will have engulfed all of Norway. A 2008 Vienna study concluded that climate change could increase bark-beetle timber losses by 219 percent in spruce-forest plantations in Germany, Sweden, and Switzerland. “With two generations per year, there will also be two attack periods on spruce annually, one in the spring and one in July and August,” warns Nikiforuk.

On another front, in Utah, Arizona, Wyoming, and Colorado a “striking and rapid change” has happened since 2005 among stands of quaking aspen. In Colorado alone, nearly a quarter of its three million acres of aspen forest has succumbed to “sudden aspen death,” probably due to drought, though a tiny beetle has also been implicated. And in Oregon, a once-rare fungus has “multiplied so successfully with warming temperatures that it now threatens millions of Douglas-fir trees.”

Tree populations once covered half the earth and now shade less than a third of our planet. Still, they store about 45 percent of the world’s carbon. A 2010 study estimates that beetle/drought die-off in the Southwest has or will release five million tons of carbon into the atmosphere.

Nikiforuk cites a Pueblo saying, “The beetle comes when the trees cry.” The pinyon-killing drought in New Mexico, one scientist found, did indeed make the trees cry: When air instead of water moves up the tree, it creates an internal noise that seems to draw the insects.

What does the death of “more than 30 billion trees in the West” portend for us ten years from now? Five years from now? The mind recoils at the thought.