Reflections on change, natural and otherwise:
A forest journal

Kathie Durbin
H.J. Andrews Experimental Forest
May 11-17, 2007

Friday May 11, Lookout Creek

Two fat mosquitos dance above the tumbling waters of Lookout Creek. Road-weary, I find a perch on the near bank and my city eyes search for spots of color to lift my sagging spirit. Too late for trilliums here, too early for rhododendron blossoms. Only delicate white candyflowers and brilliant white dogwood blooms punctuate the green scrim of the forested riverbank.

In the absence of reds and yellows and pinks, there is a mosaic of green against green. A vine maple with bright mint-green leaves grows horizontally out of the bank, leaning gracefully over the creek. Oregon grape with its glossy dark serrated leaves springs from the duff. There's newly sprouted poison oak, shiny too, with its shapely oak clusters. New growth is everywhere: the bright tips of the Douglas fir branches, the swordfern's unfurling tips.

Eleven winters ago this pretty, well-behaved creek became a monster. Swollen with stormwater and snowmelt, it plucked boulders and logs from the mountainside and carried them downstream in a torrent, eating away at its banks and depositing its load here, creating a broad gravel bar where a narrow ravine had been before. The high water line, marked by dangling roots, is still visible on the far bank. Trees torn from the banks lie across the creek; one massive Douglas fir now makes a sturdy footbridge.

As I lift my head, I see the shaggy tops of ancient firs on the opposite ridge, straight and tall and eternal. Cedars with their scaled branches cluster close to the creek. The pale lichen draping the firs along the trail give this riparian stand the ambience of great age, but that is deceptive. Everything is dying and renewing, nothing is static, not this creek, not these boulders, not this bank, which could crumble into the river given another 100-year flood.

If this creek could change its course and reshape its banks so dramatically in just a few hours, who can predict the changes that 200 years might bring?

Tomorrow I will learn whether the pert green oak clusters carry the poison that could cause my skin to flower in a painful rash.

Saturday, May 12, Lookout Creek Old Growth Trail, lower trailhead.

I sigh as I enter the old-growth forest, and the forest, responding to the press of my footstep, sighs back. Like old friends, we acknowledge each other. It has been too long. The forest surrounds and embraces me. My spirit says yes, yes, this is why I came.

I follow the springy up-and-down trail to the creek, past the ancients, the standing firs and the fallen, breathing in the perfume of lush decay, listening to the steady rush of water, observing where light finds an opening in the canopy and coaxes Devil's club and vine maple from the duff, feeling the cool air on my skin.

Here, at this higher elevation, I find my color spots. The trilliums, beacons of hope and purity, still bloom, and yellow wood violets poke up where roots of fallen trees have tilled the soil. The Oregon grape is in full yellow flower.

High above the creek, I sit on a log that is sinking into soil. New life and old death surround me. The size of these giants, standing and fallen, is mindbending. The fallen lie across slopes where they were taken down by wind or shifting ground. They rest in a great jumble at the stream crossing, which is itself constructed from a pair of fallen firs. Some logs, uprooted when the earth moved, rest intact, parallel to the slope. Some splintered when they struck other trees, exposing their tight-grained wood.

This is spotted owl forest, open beneath the high canopy, and I stop in my tracks, willing an owl to swoop down to a low limb. Here on the Andrews, nearly 40 years ago, a young undergraduate student in biology named Eric Forsman began observing the behavior of the northern spotted owl. He soon discovered the affinity of strix occidentalis caurina for these deep, dark old-growth stands. I know there are owls nearby. But today, they follow their own counsel. It is enough to imagine one of the brown-and-white-mottled raptors watching me from a high bough with its bottomless black eyes.

My light leather boots serve me well on this low-impact trail, and my sturdy maple walking stick helps me navigate its ups and downs. The forest is silent, except for the faint trill of a bird.

I am grateful that the foresters who carved up the Andrews for their experiments in logging and road-building techniques left this valley largely intact. I count places like this, intact landscapes set side for scientific research or wilderness, as jewels in a jewelbox: they are mine to possess in the only way a forest like this can be possessed, with the heart and the spirit and all the senses.

In 200 years this valley may look different in subtle ways. More ancient grandfather trees will have fallen, casualties of extreme old age. Wind will have knocked down others, creating openings where forbs and flowers and shrubs flourish in the light. New conifers will have sprouted and grown to maturity. But the forest itself, which includes the life beneath the ground as well as above it, will be much the same, a place where the cycles of life and death unfold without human interference.

Sunday, May 13, clearcut

They took every big tree in this unit. It's private land, an inholding surrounded by national forest land, so they can still get away with that here. A big stump near the road is decorated with red spent shells, and the ubiquitous smashed beer cans and flattened water bottles litter the ground. But those tokens of man's presence are of little consequence when compared with the landscape loggers left behind here.

I try to guess how long ago this unit was logged. The spindly Doug firs are maybe eight feet tall, much of that this year's new growth. They shoot up fast in the full sun. Here, color abounds. Clumps of purple wild iris and bracken fern carpet the uneven ground. Himalayan blackberry is taking hold and so is mustard-yellow scotch broom, both exotics that tend to overrun everything. There's a small patch of red sorrel; what microclimate allowed it to flourish here?

Alder saplings are scattered among the firs. Will they be allowed to grow, to compete with the conifer seedlings for sun, water and nutrients, to do their

work of fixing nitrogen in the soil? Or will they be killed off with herbicides to give the firs a head start?

I sit near the gravel landing where the yarder parked, Blackberries and clover are trying to colonize this rocky patch, but it's slow going. Up on the hillside, the unit boundary separating this clearcut from the forest beyond is obvious: a straight line drawn across slopes and small creek drainages.

Higher upslope, near a scorched snag 15 feet high, I find wild rose and purple vetch. The snag tells me this unit was burned to dispose of the slash and encourage seed regeneration. I see no hemlock or cedar here, only plantation fir.

No mossy giants remain to soak up sound. I can hear the wind, and birdsong, and the creek flowing down below. White butterflies flit about. As the fresh scat attests, this land is prime forage for deer and elk.

Clearcuts are a fixture on the Oregon landscape. And they do perform an ecological function. Small openings scattered across watersheds bring diversity to the forest, opening its canopy, letting in the sun, providing forage for game.

But I have seen too much. I have seen entire watersheds and islands stripped of their forest cover down to the eroding streambanks. I have seen the contours of the land laid bare. It is the cumulative effect of widespread clearcutting that has brought the practice to an end on the public lands. Where logging occurs now, some trees are left standing, a legacy for the forest to come.

Private landowners are not so constrained.

At this site, the surrounding national forest is sending feelers into the clearing. The edges are softening. But the clearcut is affecting the forest as well, opening it to light and heat and wind. The edge effect cuts both ways.

Because this land has been desecrated, I feel free to pick a bouquet of iris, a frond of bracken fern, to pee on the ground if nature calls. The same impulse may explain the beer cans, the shotgun shells. It is human nature to feel free to join in the disrespect that has been shown to this plot of ground.

What does the future hold here? It would be instructive to return in 20 years. In 20 years, if natural succession is the plan, the alders and other hardwoods will flourish along with the firs. The land will be a riot of brush and deciduous trees and conifers, all competing for dominance. But if the alder is poisoned, and the surviving firs are not thinned, the canopy will be closing. All is light and color and noise now, but then the stand will be dark and depauperate, a sterile plantation devoid of color, of butterflies or birdsong.

Monday, May 14, log decomposition site

The short trail to the research plot follows a dry creekbed littered with sagging logs warped by the weight of snow. It passes through a meadow of knee-high bracken fern and maples that reflect the late morning sun. Along the path, swordferns unfurl their pale fronds. Trilliums and tiny hemlocks mark the site of a log well on its way to becoming soil.

Hemlock branches curtain the entrance to the study site. Beyond, only the thinnest shafts of sunlight penetrate the gloom.

The logs for this study, ranging in age from 80 to 200 years, were cut in 1985 from other stands on the Andrews and placed here on the ground beneath 500-year-old conifers. Many have been cut into segments -- "cookies," researchers call them. Some are fitted with canisters made from PVC pipe and designed to hold a material that absorbs carbon dioxide. Upside-down margarine tubs cover other PVC pipe sections that are attached to plastic tubing inserted into the duff next to the fallen logs.

Through chemical analysis, scientists are able to measure the respiration of these logs as they give up the carbon dioxide that has been stored in their wood for a century or two. This information will help them determine whether these dead trees are carbon sources or carbon sinks -- timely research in an era of accelerating climate change.

However, evidence of climate trends "doesn't just pop out here," says Forest Service research scientist Fred Swanson. The Andrews is influenced by the maritime climate of the North Pacific. Many of its drainages are washed by cold air from north-facing slopes. Snow covers the high country into May.

It may be that the Andrews and other areas of the central Oregon Cascades will be less affected by a warming climate than other regions, that they will become a kind of sanctuary.

Walking through the log decomposition site is disconcerting. Pink plastic ribbons hang from the boughs of vine maples. A tall wooden stake fitted with a curved metal roof stands next to another three-foot length of the ubiquitous PVC pipe. Trying to guess the functions of these contraptions, I feel like an alien who has stumbled into a strange land.

Forest Service scientist Mark Harmon came up with term "morticulture" to describe the study of dead trees in the forest. Until the 1980s, old-growth forests were widely regarded by the Forest Service as "decadent" stands, "biological deserts" that offered little of value to research.

The environmental movement's successful campaign to win federal protection for the northern spotted owl and its old-growth habitat changed all that. Suddenly, research funding became available to study old growth – its value as habitat and its unique ecological role in the forest.

Over the past two decades, scientists have come to appreciate that the forest includes not only the trees but the soil and the insects and rodents and mycorrhizal fungi that live beneath the soil. It turns out that the decay of fallen trees is integral to the perpetuation of the forest. This was a radical idea before the 1980s.

Nearby, in a separate study with the fitting acronym DIRT, scientists are manipulating forest litter to learn about longterm change in soil carbon and nitrogen. In some areas litter is removed; in other areas, the amount is doubled.

Here on the log decomposition site, 25 percent of the forest floor is covered by downed wood. Periodically, the logs are "destructively sampled," a peculiar bit of Forest Service jargon that means sections are cut out of them and studied in laboratories. Scientists measure the rate of decay, the rate of invasion by insects and fungi, and "log hydrology" – how much water is stored in the logs and how it is released.

Researchers have learned that different species decay at different rates: western red cedar, with its natural preservative, decays at the slowest rate,

followed by Douglas fir, hemlock and Pacific silver fir, which is spongy and wet after 22 years.

Old trees have given their lives – perhaps centuries more as live trees standing in the forest -- in the interest of science. So it seems important that these experiments will contribute vital information to help scientists better understand the role of dead trees in the ecosystem.

The trail passes out of the test site and continues past more decomposing logs. Here there are no plastic pipe sections, no colorful ribbons. There is just the forest, decaying all around me.

Sitting on a sofa of moss, I take note of the sprouting Oregon grape and salal, of deer scat and ragged rhododendrons. Here the forest does what it does without poking or probing.

On this flat bench, trees that were saplings in the year 1500 hold the record of time in their rings. They sprout new branches 100 feet in the air and harbor whole webs of life in their canopies that are mostly unknown to science, nourished by the moisture they capture with their needles and by the nutrients in the soil that once was standing forest and now is the forest beneath our feet.

Tuesday, May 15, Lookout Creek Old Growth Trail, upper trailhead

Wild currant is in bloom along the road, but snow still blocks the road to Carpenter Mountain, the high point on the Andrews.

This upper trail has a different feel. It is a trail of broken trees. Huge conifers have fallen across the path and have been cut into sections by chainsaws to clear the way.

These are not the rotting logs of the decomposition site but sound, tight-grained Douglas-firs, their fresh-cut wood flashing bright orange against the dark green-black of the forest. Some have cracked at the base on impact, opening into bouquets of long sharp splinters. They exude an intoxicating fresh-cut turpentine scent, evoking memories of my childhood in Eugene, log trucks passing through town all day and the glow of the wigwam sawdust burners at night.

I pick my way carefully down this trail that has been maintained at high cost in labor. Huge snags line the trail. Soon there is the creek, tumbling over mossy rocks, and soon after the ford of a smaller stream, which finds its way through vast tangles of fallen trunks and root wads. Everywhere there is destruction punctuated by new life: a shrub with soft green leaves and tight white buds, pinkish at the base, proliferates. I imagine the trail a month from now, when these buds have burst into bloom.

Tuesday, May 15, end of Road 320
Jerry's Forest

I have come alone to an old battlefield. Here, in 1990, Jerry Franklin, a Forest Service scientist and University of Washington professor of forest ecology, brought a busload of foresters and journalists to view his "sloppy clearcuts."

At the time it was heresy, the idea of logging a unit but leaving large number of old conifers as the legacy of the previous forest to help regenerate the next.

Douglas-fir seedlings would not regenerate in the shade cast by the leave trees, the old-school foresters warned. The big conifers would blow over in the first strong wind. Left unsaid was the real question: How could Franklin justify wasting so much volume by leaving it standing in the forest or rotting on the ground? This was not a shelterwood, to be logged later, but a permanent remnant of the forest that was.

So how does this place look 17 years later? Elegant is the word that comes to mind as I stand on the ridge road that looks out on one of the units. The firs stand straight and tall, anchored to the slope. From where I sit on a blackened stump, I see no windfall. These trees cast shadows, yes, but most of the unit is open to the sun. It is populated by noble fir, with its flat branches, and Douglas-fir, and by rhododendron, chinkapin, and other varied shrubs.

Esthetically, it is pleasing, not the brutal blow of a clearcut, but a gentle, managed landscape. There is birdsong, the flash of butterflies, the distant sound of water. I am on the far side of a locked gate, privileged to be here

where the public cannot go because I am curious, because I asked, because I know something of the history of this place.

Down at the bottom of the unit I sit in the shade of a leave tree, a big Douglas-fir with a metal tag that identifies it as 9501. The tag will allow scientists to monitor the fate of the retained live trees. Doug fir seedlings sprout all around me in the sun. The noble firs appear to flourish in the shade. As I look off into the distance, my eyes are drawn to the big trees, dark stems widely spaced.

I don't know what animals make this forest their home, but I can imagine that it is hospitable to many, covered with snow in winter but shaded, not baking, in the summer sun. Cones litter the ground, ants crawl over the legs of my jeans, deer and elk scat is everywhere. There are snags for woodpeckers, flowers for pollinating bees.

This is not a clearcut; the light is soft, muted, not harsh. This is not a plantation either; its understory is too varied. And it is not an old-growth forest; its canopy is too open to harbor spotted owls.

It is something new, something that humans have designed.

Thursday, May 17, Lookout Creek

I sit on the gravel bar, close to the creek, focusing on a single large rounded stone. The cold creek washes over the stone. If I sat beside this stream for 200 years, perhaps I could track how the force of flowing water smooths the surface of the stone, rounds it, perhaps witness the moment when the current dislodges the stone from its niche on the cobbled floor of the stream.

Behind me, above the streambank, a log lies decaying in the forest. In death, it has become a gallery for insects, a nursery for tiny hemlock seedlings, a banquet for fungi. If I lay my body down beside this log for 200 years, could I pinpoint the moment at which it returns to soil?

Mortality is on my mind today. One month ago, my younger brother died abruptly of what doctors called a silent heart attack. He died in his sleep, at the age of 57, leaving behind a wife and a 13-year-old son.

To lose a parent is to become suddenly aware of one's own mortality; to lose a sibling is to feel the finitude of life with a chilling immediacy.

For a Douglas-fir seedling, 57 years is time enough to become a vigorous, fast-growing adolescent. For a forest, 57 years is an eyeblink. For a stream, it can be an eternity.

For a man, it is that state of maturity when all the important decisions have been made and it is time to reap the rewards of a life well and fully lived.

Here on the Andrews, time does its work over centuries and millennia, destroying and rebuilding and healing the wounds inflicted by nature and man.

On this rocky shore by rushing water, I salute the forces of nature that even now are beginning their work of healing my grieving spirit.