

NOTES: *THE FOREST UNSEEN* by DAVID GEORGE HASKELL
(Dates are chapter headings. Numbers are page numbers.)

APRIL 2ND—CHAINSAW

Salamanders, fungi and solitary bees revel in the tangle of fallen logs and deep leaf litter. Logging turns forest soil from moist duff to oven-baked brick; populations sometimes take centuries to recover. Revival is constrained by lack of old dead logs that act as nurseries. Dispersal of deep forests species is slowed. 63-64

Forests are no longer understood as a “balance of nature.” Now the forest is a “dynamic system” under constant assault by wind, fire and humans, endlessly but vigorously recovering from disturbance. 64-65

The humility needed to put our desires into a bigger context is kindled by direct experience with the forest and its fabric of life that holds and sustains us. 66

Thoughtful management for the long-term well-being of both humans and forests requires quiet and humility. “Oases of contemplation can call us out of disorder, restoring a semblance of clarity to our moral vision.” 67

APRIL 22—WALKING SEEDS

The fast pace of global warming is causing wide-spread extinction because adaption to new conditions takes time. Thus refugias are critically important, sanctuaries where the cascade of effects from a hotter and drier world (invasive species, loss of pollinators etc) and human disruption (fragmentation etc) can be kept at bay. “Ephemeral [plants] may be caught in a race between natural selection and extinction. Either they will adapt to new conditions, or their numbers will dwindle in the face of a new reality for which they were unprepared.” 92

MAY 7—WIND

A measure of the vitality of a forest ecosystem is the density of tree carcasses; at least half a tree’s contribution to the fabric of life comes after its death. You’re in a great forest if you cannot pick out a straight line path between fallen limbs and trucks. A bare forest floor is the sign of ill health. 100

JULY 2—FUNGI

The engines of decay keep nutrients and energy moving through the forest ecosystem; a forest depends upon the vitality of the underground fungal network. 136

AUGUST 8—EARTHSTAR

To truly love the world is also to love human ingenuity and playfulness. Our biggest failing is lack of compassion for the world, including ourselves. There is value in participating in the world as it is. 158

OCTOBER 5—ALARM WAVES

We take our cues from the interior noise of our minds, riding the waves inside our heads, thinking of past or future. It takes a repeated act of the will to bring us back to the present, back to our senses. 185

Trees affect our minds. Most of the innumerable molecules emitted by trees bypass our sense of smell and dissolve directly into the blood, entering body and mind below the level of consciousness. The Japanese practice of *shinrin-yoku* (bathing in forest air) provides a way to participate in this information that may bring a measure of well-being at the wet chemical core of ourselves. 187

DECEMBER 3—LITTER

We recognize invisible soil microbes by smell. The earthy smell of some actinomycetes and bacteria decomposers in the forest litter produce sweet aromas while anaerobic microbes produce unpleasant acrid smells. However, most microbial smells cannot be detected. 223-224

The marriage of fungus-root (mycorrhizal) fungi with plant roots is beneficial to both. Through photosynthesis trees supply the fungi with sugars created by ancient bacteria embedded in leaves using only sunlight, air (carbon dioxide) and minerals from the soil. Fungi that coat and penetrate roots reciprocate by using tiny threads (hypha) to mine minerals (particularly phosphates) from clay particles essential for photosynthesis. 226-227

The fungus will either use the sugars or pass them on to other plants in a mutualistic process that benefits the forest ecosystem. Trees share resources below ground while competing for sunlight above ground. A new forest metaphor: cooperation wedded to self-interest. 227-229

DECEMBER 26—TREETOPS

Scientific assumptions and methods can eliminate cultural biases and deepen our understanding, but science narrowly applied serves only the needs of the industrial economy. Scientists are not trained to simply listen to nature without a hypothesis and the tools necessary for data extraction. The reality that wild animals enjoy one another and take pleasure in their world is rarely acknowledged. Therefore, the

stories science tells are often useful and revealing but “should not be confused with a confirmation that our limiting assumptions reflect the shape of the world.”
236-238

DECEMBER 31—WATCHING

A year of returning to one place peels back the barriers between the forest and human senses, intellect and emotions. A deep kinship with the forest develops tempered by a realization of profound ignorance and alienation from its more-than-human life. With this separation comes relief: “The world does not center on me or my species . . . life transcends us. It directs our gaze outward.” 241-242

EPILOGUE

The biological connections that sustain all life are revealed when attention is given over time to the particularities of sound and the feel, smell and visual complexities of a chosen place, whether the last stand of an ancient forest or a tree orphaned in a bustling city. 243-245.