Bark Beetles—Sociobiology of an Epidemic


This timely book weaves together fascinating biology, compelling stories of individual people, and many varieties of human folly in a story with global implications. The geographic scope is from Alaska’s Kenai Peninsula to the American Southwest, with interior British Columbia at the heart of the story. If the central metaphor for the book is somewhat wide of the mark, it only confirms the limitations of human imagination which have helped create the catastrophes the author explicates.

The most detailed biological information concerns bark beetles in the genera _Dendroctonus_ and _Ips_. However, the author shows definitively that the ecology of these species cannot be understood in isolation from the fungi, mites, and bacteria that they transport from tree to tree, and with which they engage in myriad mutualistic and antagonistic interactions. The book is informed by recent research in the field, as indicated by the extensive bibliography for each chapter, and the author’s extensive conversations with the researchers. Research into the biology of bark beetles and implications for forest management is appropriately put into the context of the modern era of Western civilization’s use of forests from Johann Gmelin in 18th century Germany to Buzz Holling in present-day Canada.

Homeowners, loggers, and ranchers in affected areas, scientists and artists, and public officials dealing with the crises are all portrayed in three dimensions by the author. The dislocation felt by those living and working where bark beetles have transformed the environment is almost palpable. At the same time, Nikiforuk demonstrates how many of these people are acknowledging their changed circumstances, confronting their grief, and attempting to adjust. Scientists in both Canada and the U.S. shared their dedication, creativity, and frustrations with the author, allowing the reader to grasp how they are both fascinated and appalled by what they are learning. While most of the official responses have been disastrous, the author did find one local public official (in Prince George, B.C.) who recognized that there was no way to forestall beetle-kill in municipal open spaces and weathered criticism for an aggressive program of cutting declining and dead trees.

Human folly set the stage for explosions of native bark beetles, and has exacerbated their effects. The most significant of these follies is the alteration of the Earth’s climate due to release of CO₂ and other greenhouse gases. Species including the pinyon engraver, spruce beetle, and mountain pine beetle are producing more generations per year, remaining active over a longer portion of the year than ever observed, and/or extending their geographic ranges to the north and upward in elevation. Fire exclusion in forest types such as lodgepole pine, where fire was a periodic occurrence, has created landscapes composed almost entirely of the older stands which are the mountain pine beetle’s favored targets. Large, indiscriminate clearcuts intended to deny mountain pine beetles of brood trees have removed unaffected mature trees and tree regeneration, damaged habitat for predators and parasites of the beetles, and degraded watersheds affecting human water users and fish habitat downstream.

The central theme of this book is the presentation of intricate details of the biology of non-charismatic insects and fungi in a manner that makes clear the integral roles they have played in forest ecology since long before humans came on the scene. The metaphor implied by the title, and scattered instances of anthropomorphism, detract from this salutary approach. It does not advance our understanding of the non-human world to imply that mountain pine beetles are spreading across the Rocky Mountains and into the boreal forest at the direction of a single, sovereign power, or to liken them to hitmen in the employ of organized crime or to Euroamerican settlers oblivious to the native ecological systems they were destroying.

Notwithstanding these few distracting elements, _Empire of the Beetles_ contains a wealth of useful