

## INSECTS & GARDENS

Nature, “this incalculable chaos,” as Eric Grissell calls it in *Insects and Gardens: In Pursuit of a Garden Ecology* (354pp., Timber Press, 2001) is so complex that attempts to control it are doomed to fail. In response to our most spectacular efforts, insects evolve resistance faster than we can create new poisons – or genetically modified crops. “As we increasingly risk our own health in a war of toxic terror . . . we are encouraging insects to become ever more dominant life forms.”

To put this into perspective, insects at 27 billion tons outweigh humans 6 times over – they’re by far the world’s most dominant animal by mass and represent 80% of its species.

We can’t control them and it seems we can’t live without them. 1,000 species serve as human food, 200 in Mexico alone. If you don’t eat them deliberately, you do so inadvertently. As FDA allowances reveal, they’re likely to be in everything – you’ve “already eaten enough bugs to sink a small tugboat – maybe even two.” Then there are the termites in our houses, the bedbugs in our beds, the fly larvae that live in our muscles, and the insect-cousin mites in our eyebrows.

So what are we to do? Join the cosmic whirl, Grissell says, not as lion tamers but as clumsy ringmasters of a 17-ring circus.

In introducing the insects – what they are, how they interact, and how they live in our gardens – he builds his theme of complexity. Unable to subdue his comic voice for

long, he notes that the vast number of insects explains “why entomologists are often considered insane.”

Grissell distinguishes insects from millipedes and centipedes, sowbugs, pillbugs, spiders, scorpions, Daddy long legs, ticks, mites and other insect look-alikes.

Among insects, he notes that the butterfly’s proboscis is so long it’s coiled like a spring under the head. Of the great cleaner-uppers, there are cigarette beetles, drugstore beetles, ship timber beetles, etc. Be thankful for them and for the enemies of their allies, the fruit flies: if all the progeny of a pair of fruit flies survived for a year, there’d be a ball of them 96 million miles in diameter.

In addition to leaf feeders (grasshoppers, aphids, etc.) there are underground feeders (beetles, cicadas, maggots), gall formers (oak gall wasps), bulb, tuber, crown and stem feeders, leaf rollers and miners, bud feeders like the boll weevil, nectar, pollen, seed, fruit and pod feeders, fungus feeders, feeders on dead stuff and omnivores. There are generalists and specialists among them all.

Predators such as praying mantids, wasps, beetles and thrips feed on all these. And since, Grissell says, notorious plant eaters are often also predators, let nature sort them out. Preying on the plant eaters and the predators are parasitoids, laying eggs in their hosts’ bodies.

The normal state of affairs for this wild conglomeration is warfare. “For nature to be in harmony all factions must be in constant battle.”

How to react to this? Bring it on, Grissell says. Increase plant and habitat diversity to invite more and more insects into the garden. Try to create an ecological community that mimics a natural one. Include varied soils – sand, clay,

loam – mounds and low spots, tall plants and short, plants of many different kinds, including some native plants as food for immature insects. “If you build a more complex garden, the insects will come and the garden will become more manageable, naturally.”

Be messy – retain all that grows and dies, if you can. Fill all the space with something. If you have problems, do nothing – they often resolve themselves. If they persist, get to know your enemies.

Grissell calls the concept of “Master Gardener” (your reviewer is one) “pure self-deceit.” I begin to see what he means.