THE WOUNDER SHALL HEAL

That favorite phrase of the late mythologist Joseph Campbell captures the essence of Douglas Tallamy's *Bringing Nature Home.* As entomologist Tallamy cautions, we've converted so much of the U.S.'s land to human uses, that left to its fate most wildlife must disappear within the next century. But a crucial part of that conversion consists in our having landscaped largely with exotics -- plants unable to sustain wildlife. Thus we are precisely the ones who can reverse the trend, who can provide enough suitable habitat in our gardens, lawns, parks, roadsides and public places to sustain our wild neighbors into the foreseeable future. To achieve this, he says, we need to start replacing alien plants with comparable natives. He explains why, and argues that the process need not be as painful as it may at first sound.

We've reduced our enormous land mass, that once created rich biodiversity, to tiny islands where species extinction happens much faster, and so could possibly witness "an extinction on a scale that exceeds what occurred when a meteor struck the Yucatan Peninsula at the end of the Cretaceous period."

We've believed that we could simply push nature aside; now there's no place for her to go. With 300 million souls in the U.S. (as of 2007) "we simply haven't left enough intact habitat for most of our species to avoid extinction." We've paved 43,480 square miles over the lower 48 states, given over 62,500 square miles to lawns; we developed four million acres annually from 1982 to 1997 alone – "suburbia in some areas of the country has increased

5,909% since 1960." "[W]e have taken and modified for our own use between 95 and 97 percent of all land in the lower 48 states." (This is not speculation: Global Information Systems and satellite images show us exactly what we've done.) And if we continue, we will soon have lost 95% of the species that greeted the Pilgrims.

Sadly, our wonderful human urge to beautify our surroundings has perhaps caused as much destruction as anything else. And that's because we've inadvertently waged war against whatever wild habitat is left, and against the wild creatures that live in it. How have we done this? Partly by landscaping with alien species which, though they may provide cover, nectar, seeds, fruit and nuts for mature wildlife, usually cannot provide edible leaves in the spring, necessary to feed the young, so that their usefulness kicks in too late to help get wild families started.

And because they've been chosen specifically for their resistance to diseases, insects and other foragers, once they escape (and 5,000 alien species have escaped so far) they out-compete and replace native plants that *will* support wildlife throughout their life cycle. And as if this were not enough, along with these plant immigrants have come diseases (Sudden oak death, from Germany, noted in 1995, for instance) and rampaging insects (notoriously on Tallamy's home turf, the Japanese beetle), rampaging because, like alien plants, they've found no natural enemies here to control them.

And that's because, as Tallamy explains, true biodiversity means "functioning members of an interacting community," – i.e. only those plants and animals which have evolved together can support one anothers' needs. It's

true that we've already seen many species go extinct, and the fabric has not yet – so far as we know -- torn irreparably, so how much diversity do we need? And the answer is, we do not know. "All species have the potential to sink or save the ecosystem, depending on the circumstances." What we do know, says Tallamy, is that diverse (read native) ecosystems use energy more efficiently; and more efficiency means more energy, biomass and services for us – more oxygen, fish, lumber. And maintaining diversity may also mean our survival. "When I talk about the value of biodiversity in suburbia, I am talking about a natural resource that is critical to our long-term persistence in North America." And since species diversity depends on the size of suitable habitat, if we take 50% of the land we lose 50% of species, if 80% -- 80% of species. Simple, but deadly, arithmetic.

So if we grant, for the moment, that biodiversity is good and that the continued introduction of alien species into our gardens and parks, and their escape into "wild" areas works against this, what can we do?

First, change our priorities. In choosing landscape plants we need to think beyond beauty, coherence or drought tolerance. Because though "the [alien] plant will occupy space and use . . . light, water and soil . . . that would otherwise be available for a native plant . . . it will not pass the energy it harnesses from the sun up the food chain." And it won't do so, by and large, because bugs won't eat it. Thus bugs, often the gardener's scourge, occupy a key role in maintaining diversity. Most higher animals – birds, preeminently – don't eat plants directly: they eat the bugs that eat the plants, bugs more filled with

protein than beef. If we want to continue living in a world filled with creatures other than ourselves, we need to learn to tolerate, even if we can't love, the bugs. As the biologist E.O. Wilson says, insects are "the little things that run the world." And most insects are specialists, keyed to one plant or plant family; plants outside that range – read aliens – may not serve as food even to starving insects.

"Because," Tallamy says, "so many animals depend partially or entirely on insect protein for food, a land without insects is a land without most forms of higher life." Only 1% of the four million insect species interact negatively with people; the other 99% pollinate, salvage nutrients from dead plants and animals, keep insect herbivores in check, aerate and enrich the soil, and provide food for most other animals. The estimated annual worth of their services? – 57 billion dollars. And if they disappear, humans will soon follow. Tallamy has filled his book with gorgeous photos of them, mainly, I suspect, to help us become, if not their admirers, at least their allies.

And, since so little intact habitat survives, we can help them by transforming our yards, gardens, parks, roadsides and businesses. "Because life is fueled by the energy captured from the sun by plants, it will be the plants that we use in our gardens that determine what nature will be like 10, 20, and 50 years from now." "Unless we modify the places we live, work and play to meet not only our own needs but the needs of other species as well, nearly all species of wildlife native to the United States will disappear forever. This is not speculation. It is a prediction backed by decades of research . . . by ecologists who know of what they speak."

After reading Tallamy's book I checked the provenance of the ornamentals in my own yard and found that 90% were exotics, from all over the world. And the few "natives" hailed from such a vast area – Canada to Mexico – that they too may well be biologically unsuitable for this hot interior California valley. The next day I saw my neighbor working on a raised bed at the edge of our shared oak/pine chaparral green belt, and when I asked what he'd plant he said, "Vinca and Geraniums." "You might give natives a try," I said. "The bugs probably won't eat those." "Oh," he said, "I've had them here before and the bugs never touched them." I'm sure he *knew* he must have heard me wrong.

The full title of Tallamy's book is *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants,* and please underline the "You," because he sees the salvation of our nation's wildlife as in our hands. Gardeners, he says, who switch from alien to native plants "can and will 'change the world' by changing what food is available for their local wildlife." "It is not only possible but highly desirable . . . to create living spaces that are themselves functioning, sustainable ecosystems with high species diversity." He calls it "reconciliation ecology," and asserts that "it's the future." "As gardeners and stewards of our land, we have never been so empowered – and the ecological stakes have never been so high."

So read his book, check out local native plant sources, gradually replace aliens with natives ("I reject," Tallamy says, "the notion that landscaping with natives is inherently messier or less beautiful than landscaping with aliens") and

try to increase your tolerance for our insect allies. Evening primrose! California grape! Buck brush! Go native!

--Bill Keep (words: 1,446)