

Why Garden for Nature?

"Occasionally, we encounter a concept so obvious and intuitive that we have never thought to articulate it, so close to our noses that we could not see it, so entangled with our everyday experiences that we did not recognize it." – Douglas W. Tallamy



Photo: MaryJane Proulx

With these words, Douglas W. Tallamy prefaces his 2007 book *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants* (a book that every homeowner should have in their library). In his book, Tallamy underlines something so fundamental and obvious to us that we have forgotten or ignored it: our native wildlife cannot be sustained on exotic plants, the very plants so many of us love to grow in our gardens.

Think of the monarch butterfly: anyone who has ever raised monarch caterpillars knows that they can only be raised on native species of milkweed (*Asclepias sp.*), an important 'weed' that supports hundreds of pollinator species.

Why is this? Milkweed produces toxins known as cardiac glycosides in its leaves that are poisonous to most other insects, however monarchs (and several other brightly coloured insect species) have evolved mechanisms to store the milkweed toxins in their bodies as a defence against predators. This benefit of protection against predators led to the monarch caterpillars becoming specialized only on milkweeds.

Over millions of years, monarchs have benefited from feeding only on one group of plants. But in modern times, large scale agriculture and housing developments have eliminated many large meadows containing monarch habitat. Milkweed is still a common plant, but it occurs over less land than it used to. Being specialized on one plant makes a species/population vulnerable if that plant declines. When the host plant disappears, so does the insect that feeds on it, and this is one of several reasons behind monarch and other insect declines at large.

A 2016 meta-analysis of 76 papers (Yoon S, Reid Q, 2016) (<https://www.ncbi.nlm.nih.gov/pubmed/26820566>) found evidence that exotic plants, including invasive species like dog-strangling vine (*Vincetoxicum rossicum*) and garden favourites like Norway maple, may be acting as "ecological traps". An ecological trap is a situation where rapid environmental change causes a species to choose an area that puts it in danger (for example: turtles choosing to nest on the sides of roads, or bumblebees having to cross a highway to get from their nests to their nectar flowers). The study found evidence that native moths and butterflies, including the monarch, were laying their eggs on non-native plants by accident or because they thought the exotic species was a native plant. The caterpillars were unable to survive on exotic hosts, and died.

When we garden for nature, we help reverse some of these changes that humans have made to the landscape. When we garden for nature, we help restore some of the balance that has been lost. When we garden for nature, we help re-connect with our roots and the world around us. Gardening for nature may be one of the most important things a landowner could do to help connect critical wildlife habitat.

Learning from Past Mistakes...

It might seem counter-intuitive, to garden for nature. Normally when we garden, we are actively garden against nature, removing natives and replacing them with exotic plants. The importation of exotic plants into North America has a long history, starting with newly arrived European settlers bringing their favourite Eurasian species to help the New World resemble the one they left behind. This introduced such ubiquitous plants as wild chicory and oxeye daisy to North America. The innocent act of planting a flower in a new land had many unforeseen consequences.

Possibly the worst consequence of importation happened in 1904 when a fungus know scientifically as *Chryphonectria parasitica* was introduced into New York state. Also know as chestnut blight, the fungus was introduced on nursery stock from Japan. For millennia eastern North American forests, stretching from southern Ontario down to Mississippi, from were full of beautiful American chestnut trees, accounting for a quarter or more of the trees in many forests. By 1940, most mature American chestnut trees were wiped out by the blight, and our memory along with them. When we lost our chestnut trees, we didn't just loose the trees. We lost 2 species of moths, both species that only fed on American chestnut and which are now extinct. We lost an abundance of forest animals that were sustained in huge numbers by feeding on chestnuts (one of which was the passenger pigeon which went extinct in 1914 and relied heavily on American chestnut and beech nuts), and we lost a rich cultural heritage. Indigenous peoples and settlers used American chestnuts as an important food source, and in the blink of an eye this rich cultural heritage and delicacy was wiped out and forgotten.



Photo: Tracey McCann

Luckily, American chestnut still exists in isolated pockets in the wild. Trees continue to sprout from dead root systems, and in the early 1970's a biological control helped to limit the spread of the blight, and effort underway to halt the fungus and grow blight-resistant American chestnut. But we will never see a mature chestnut forest in our lifetime, nor experience the joy of foraging for chestnuts in a rich wood surrounded by an abundance of passenger pigeons. And there is something fundamentally cruel and wrong about that. One can't help but feel cheated or a rite that our ancestors may have taken for granted.

The lesson of American chestnut is that our actions in our environment can have unintended and far-reaching consequences. Since the chestnut blight, imported plants must be strictly quarantined, but new invasive plants, pathogens, and insects are being introduced into North American every year. A disease called oak wilt, possibly introduced into North American from Central or South American, is threatening to decimate oak trees in the eastern United States and is expected to enter Canada anytime now. When will we see a maple blight that will wipe out all our beloved sugar maples? Gardening for nature is ultimately gardening for ourselves.



By Basil Conlin

When we garden for nature, we build ties with our land and renew old ones. Embracing natural beauty into our landscapes isn't just gardening for nature, it's gardening for ourselves.