

## "Removing insects from an ecosystem spells its doom..."

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<http://www.bringingnaturehome.net/gardening-for-life.html>

What will it take to give our local animals what they need to survive and reproduce on our properties? NATIVE PLANTS, and lots of them. This is a scientific fact deduced from thousands of studies about how energy moves through food webs.

All animals get their energy directly from plants, or by eating something that has already eaten a plant. The group of animals most responsible for passing energy from plants to the animals that can't eat plants is insects. This is what makes insects such vital components of healthy ecosystems. So many animals depend on insects for food (e.g., spiders, reptiles and amphibians, rodents, 96% of all terrestrial birds) that removing insects from an ecosystem spells its doom. But that is exactly what we have tried to do in our suburban landscapes. For over a century we have favored ornamental landscape plants from China and Europe over those that evolved right here. If all plants were created equal, that would be fine. But every plant species protects its leaves with a species-specific mixture of nasty chemicals.

With few exceptions, only insect species that have shared a long evolutionary history with a particular plant lineage have developed the physiological adaptations required to digest the chemicals in their host's leaves. They have specialized over time to eat only the plants sharing those particular chemicals.

When we present insects from Pennsylvania with plants that evolved on another continent, chances are those insects will be unable to eat them. We used to think this was good. Kill all insects before they eat our plants! But an insect that cannot eat part of a leaf cannot fulfill its role in the food web.

We have planted Kousa dogwood, a species from China that supports no insect herbivores, instead of our native flowering dogwood (*Cornus florida*) that supports 117 species of moths and butterflies alone. In hundreds of thousands of acres we have planted goldenraintree from China instead of one of our beautiful oaks and lost the chance to grow 532 species of caterpillars, all of them nutritious bird food. My research has shown that alien ornamentals support 29 times less biodiversity than do native ornamentals.