

Doug Tallamy's Presentation on How to Promote Ecological Sustainability

On November 9, 2013 I had the pleasure of attending an exemplary presentation by Dr. Douglas Tallamy at Penn State's Main Campus. Some of you will quickly recognize Dr. Tallamy as the author of "Bringing Nature Home", a groundbreaking book that encourages Americans to change our landscaping habits to reverse the ongoing decline in birds, amphibians, insects, etc. Dr. Tallamy, who answered to 'Doug' during the presentation, is a professor and entomologist at the University of Delaware and lives on 10 acres of land in southeastern Pennsylvania. The passion that he and his wife have for observing nature on their own property led Doug to perform scientific studies about native vs. non-native plants.

His presentation was superb, filled with scores of exquisite pictures of birds, insects, plants, landscapes, etc. He began with a quote by Teddy Roosevelt - "Leave it as it is" - and then proceeded to point out that only about 5% of our country is still pristine. Why? A primary reason is that we have not abandoned our "adversarial relationship with nature" that helped humans survive in ancient times. Doug argued the significance of "local extinctions" and gave a great example from a long-term study in a woodland at his own institution. The woodland is the same size as it was 30 years ago, but surrounding land has changed and nearby roads and traffic have increased. The Box Turtle population in this woodland has exhibited a steady decline during that time and appears headed for (local) extinction.

Doug stated that there are about 50% fewer birds today compared to 40 years ago and the species that feed mostly on insects are declining more rapidly than others. How about butterflies? The Monarch population has dropped about 90% since the mid-1970s. As our human population keeps multiplying many animal populations, including insects, are dropping. He told us that "Plants and animals are the rivets holding the ecosystem that sustains us." Healthy ecosystems are valuable to humans because they produce clean water, oxygen, pest control and pollination.

By now, you might think that there was a negative tone to Doug's talk. If so, you would be wrong. Yes, he laid out the facts and showed us the unfortunate trends, but then he went on to motivate us and explain how we can improve biodiversity by practicing "ecological sustainability." How? By planting native flora, reducing grassy areas, and removing invasive plants.

Not all plants are created equal, in terms of their contribution to ecological diversity, and this is the crux of Doug's research. Many insects eat plants and of those that do, about 90% of insect species eat plants of just three (3) or fewer plant families. These are insect *specialists* and they can't easily adapt to new plant species because of the "distasteful chemicals" that plants naturally produce to defend themselves. Therefore, most insect specialists can only eat plants that they co-evolved with and are unable to eat alien plants from other lands, even if these plants have been in the United States for hundreds of years. As invasive exotic species take over more and more of our land there are and will be fewer and fewer insects.

Why should we care about dwindling insect populations? Because 96% of terrestrial American birds feed their young insects, spiders, etc. Doug has studied what adult birds bring their young. Carolina Chickadees, for example, who frequent his bird feeders during the cold season, **do not** feed their babies seeds. They bring insects, mostly caterpillars, at an average rate of 1 every 3 minutes! Do the math and

it adds up to over 6000 caterpillars to raise one brood! Wow! More native plants mean higher numbers and diversity of insects which means more food for baby birds. Do you 'see' the connection? Think big. Think of a healthy ecosystem and realize native plants are a significant contributor to it. If you believe that by just feeding birds you are helping the ecosystem be as healthy as it can be, you are missing the science that Doug explains so well.

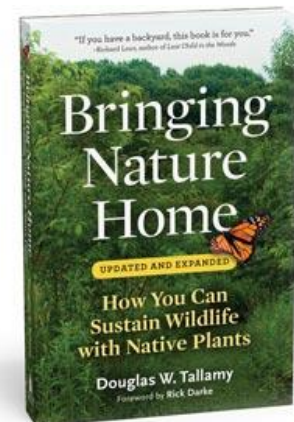
Not only birds eat insects. Spiders, frogs, toads, and other amphibians all eat plenty of insects as do freshwater fish. So do opossums, skunks, foxes and even bears! Large numbers and great diversity of insects are a sign of a healthy ecosystem, and large numbers and great variety of mostly native plants attract the insects.

Doug points out that there is about 45,600,000 acres of lawn in the U.S. Mowed lawns are mostly a monoculture that attract relatively few insect species. Much of this lawn can, over time, be converted to gardens and yards with native shrubs, trees, flowers, grasses and vines that will be far more ecologically sustainable than lawns. Doug tells us to each determine how much lawn we need for kids, pets, picnics, etc. We then *gradually* fill in the rest of our lawn with a variety of native plants.

Which natives attract the greatest variety of insects? Oaks top the list in Pennsylvania, attracting over 500 species of the insect Order of Lepidoptera, which comprises caterpillars of butterflies, moths, and skippers. Other natives that are especially attractive to Lepidoptera are willows, cherries, plums, birch and poplar trees.

One shrub that is *not* native and has a tendency to escape gardens and become invasive is Butterfly Bush (*Buddleja* species). Although this shrub does attract butterflies and hummingbirds, Doug tells us that **not a single species** of caterpillar is known to dine on its leaves and therefore Butterfly Bush plays no role in ecological sustainability. In fact, it plays a negative role because of its invasive habit.

Doug told us he is a scientist and *not* an activist. That means it is up to us homeowners, landowners and even apartment owners and dwellers to think broadly and follow through on his advice. Ecosystems are in decline, more so in our large urban and suburban centers than in the more rural and forested counties of Pennsylvania. Everywhere, we can do a lot to improve the health and sustainability of the ecosystems where we live. Go to www.bringingnaturehome.net to learn more and view the book. Read Doug's book if you have not already done so. The reading is easy, the pictures are plentiful and the advice is crucial to future generations of our birds and other animals.



Many thanks to the Pennsylvania Native Plant Society for sponsoring Doug's talk!

Jim Green

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