

## **Podcast Series, Holistic Nature of Us**

### **Episode # 11: Meet Doug Tallamy**

**judithdreyer.com**

Hi I'm Judith Dreyer,

Thank you for joining me for this pod cast series "The Holistic Nature of Us".

My intent is to take us, you and I, into a better understanding of the concepts behind our holistic nature and how that ties directly to the holistic nature of the world around us. How can we connect the dots in practical ways that we are nature and nature is in us?

I will be featuring authors and educators, practitioners and others whose passion for this earth helps us create bridges. We'll see what's trending, what's relevant to our world today, not just for land use, but to connect the dots between nature and ourselves. It's time for practical action and profound inner change so our natural world is valued once again.

Today I'm delighted to introduce you to Doug Tallamy. He's the author of "Bringing Nature Home". Good morning Doug, how are you today?

Doug: I'm fine, how are you?

Judith: Good. It's great to have you here. I would love you to start off with telling us about your credentials and how you got into writing the book "Bringing Nature Home" and why it's so relevant today.

Doug: All right, I'm a Professor at the University of Delaware, Department of Entomology and Wildlife Ecology. I am an Entomologist and I've been there 37 years, so I guess age alone gives me a little bit of credentials. I've been keeping my eyes open, looking at what's happening around me for most of my life. I call myself a Behavioral Ecologist and one of the things that I have focused on is how insects interact with plants. When you combine plants and insects you're talking about the most numerous organisms on the planet. So how they interact with each other really determines what life is like on planet earth. I wrote "Bringing Nature Home" more or less accidentally. We moved into a new house we built on 10 acres in Oxford, Pennsylvania back in 2000 and the 10 acres were totally choked with nonnative plants, invasive species largely from China. Autumn Olive and Oriental bittersweet and Japanese honeysuckle and multiflora rose and all those plants we're so familiar with. One of the things I noticed right away, since I am an entomologist I'm always looking for insects, was that there were very few insects on these plants. They couldn't use them. Well this was not news to me because one of the things we studied way back in graduate school in the 70s was that most insects are specialist. They can only use the plants with which they have a co-evolved relationship. That's because plants protect themselves chemically from insect use. Insects adapt to

particular lineages of plants and get around those particular defenses. But in specializing on particularly lineages of plants, they are not specializing on any other lineages. I always use the Monarch butterfly as a good example. It's a specialist on milkweeds and it can detoxify the cardiac glycosides in milkweeds and it can behaviorally avoid the sticky latex sap. It can eat a plant that is unavailable to most other insects. But in developing all those adaptations, it has not spent any evolutionary time developing ways of getting around the tannins that are in oaks, or the cucurbitacins in cucurbits or the nicotine in tobacco and on and on and on and on. The downside of this specialization, I mean the upside is that insects get to eat plants. The downside is that they can only eat particular plants. So, if we take away, for example if we take away milkweeds we've lost the Monarch. It can't just start to eat oaks or grass or something else. And that is essentially what led me to the rather alarming conclusion when I looked around and saw that so many of the plants in my yard and all around us are not from here anymore. They are largely from Asia and if you move farther south they're from South America. So, here we have plants from another continent that have not been here long enough for our insects to develop those specialized relationships. And that means we're losing those insects.

Judith: And that has consequences right up the food chain?

Doug: Right, that's what we've spent the last 10 years researching in my lab. And people wanted to read about that research, so they said, "could you write something?" And I said, well I'll write a pamphlet and the pamphlet became "Bringing Nature Home". You know what we've learned is that insects, as E.O. Wilson, Ed Wilson says, "Insects are the little things that run the world, and if you take them away the world will not run anymore." They're not just components of our ecosystems, they're essential components of our ecosystems. Now I have focused on their role in supplying the energy for food webs. What happens when you put plants in the landscape that don't create insects? Well then you lose your birds because the birds require those insects to reproduce and I'll just give you a quick example, Chickadees. I always use Chickadees. It's a tiny bird, one third of an ounce, but when they're rearing their young it takes 6,000 – 9,000 caterpillars to make one clutch of Chickadees. If your yard is loaded with plants that don't make those caterpillars, then you have no Chickadees. And if we do that all over the U.S. then we lose our birds, we lose all of the things that eat insects. Which it turns out is most of the animal life that is out there. This is a huge problem. We cannot afford to gut our ecosystems of the plants and animals that actually run them. And the reason we can't lose biodiversity and remain happy on this planet is that it's the plants and animals around us that run the ecosystems that support us. Its ecosystems that produce what we call ecosystem services that, they're our life support systems. You know our life support system is not Wal-Mart and it's not Starbucks. It all comes from healthy ecosystems and if they collapse, which they are in various places, we humans are going to be in big trouble. You know another thing Wilson says is, if we lose our insects we will lose the flowering plants. Ninety percent of our flowering plants depend on insects for pollination, which means our food webs will collapse; we'll lose our mammals, our reptiles, our amphibians, our birds and that includes humans. People are starting to measure insect declines around the world. You might have seen recently in the New

York Times some studies out of Germany that have been looking at insect populations for the last 30 years, I think it's 30 years since the 80s. And they're showing 80% declines in flying insects in those 30 years.

Judith: Wow.

Doug: If these are the little things that run the world, that's bad news; that's bad news. We can afford to lose them.

Judith: We can't, and it seems like for some reason, when I was studying the bee issue, I was actually somewhat appalled to read that they already knew about the decline in the honeybees with systemic pesticides in Europe at least 10 years before it hit our airwaves. They were already taking action on that particular issue. It seems like we're just so slow to respond to this urgency. I feel a sense of urgency here.

Doug: Yes, yes, I ran into a quote yesterday, again by E.O. Wilson that "Conservation biology is a discipline with a deadline." Because when it's gone, it's gone. You can't conserve it at that point. It is disappearing. And this, you know this brings me to what I talk about all over the U.S. these days and that is the role that private property owners need to play in this. When you look at the amount of land that is privately owned in this; it's most of it. In the lower 48, 83% of the U.S. is privately owned and east of the Mississippi 85% is privately owned. So if we only worry about conservation on our public property and our parks and preserves, we're going to lose it. That's not nearly enough space. We have to practice conservation at home.

I talk about doing; I guess it's 4 vital things.

1. We have to design landscapes that support food webs. We have to have other living things around us.
2. We have to design landscapes that sequester carbon. Most of our landscapes have just a fraction of the plants that they could have in them, because we have these giant lawns and we've taken out most of the trees. We'll those plants were all built of carbon and you know, when we take them away it's (carbon is released) up in the atmosphere. And we've been cutting down the forest on this planet for the last 10,000 years so all that carbon is up in the atmosphere now and it's about 1/3 of the carbon that's up there. We could pull a good deal of it out by putting plants back where ever we can and then those plants in term pump carbon into our soils. Our soils can hold 7x the amount of carbon that's in the atmosphere. We wonder what our solution is. The solution to Climate Change is getting the carbon back in the soil and its plants that do that.
3. And then of course our plants, our landscapes also have to manage our watersheds. Again, it's plants that do that. The worst way to manage a watershed is a big lawn. That actually destroys your watershed. And then finally we have to support our pollinators. We don't have enough natural areas to support the number and diversity of pollinators we need that are out there. We now have to do that at home. That gives each property owner a very crucial role in conservation.

You know don't look at the big picture. That can be depressing. But if you just look at preserving life on the little piece of property that you own, and if everybody did that we'd be nearly done. I see this as being very doable but it's going to take a collective effort and it empowers each one of us. We now become an important part of the conservation puzzle. You know we have a lot of environmental issues but it's hard for a single person to do something and see a change, see the results. But this is something where you can get positive feedback. You can see life come to your yard right away. You can see that Chickadee successfully rear its young because you put the plants that made the caterpillars that it needed in your yard. It's a very rewarding exercise.

Judith: If we do it. What I'm finding with some of the garden clubs, for example, they're beautiful gardeners. However, many of them are over 60 in the garden clubs because they have the time to do that, but they're not informed about sustainability and they are the ones who love gardening. They're the ones who love digging in the dirt. But they have established yards so it's a little more difficult for them in some ways to do major replantings. I think it's almost like we have to hit a lower age group to get them to rethink about their suburban yards. The suburban town centers that go in: where's the foliage? Where's the diversity in our lawn? And it may only be a 10x10 lawn but there's nothing there except grass. You know we have to educate folks along those levels.

What I loved about your talk, the first one that I was able to get to, you mentioned how in 10 short years we can make a difference.

Doug: Even shorter than that. It's surprising how fast life can come back to your yard.

Let's talk a little bit more about that giant lawn that everybody has. We have an area the size of New England in lawn at this point, and of course we listen to the commercials and we put Scott's Turf-Builder on there and it's loaded with pesticides. Most of that runs off into our waterways and we mow it every week. It's a very environmentally unfriendly way to treat that landscape. I'm not suggesting that we get rid of lawn. I'm suggesting we just, let's start by cutting it in half. Only have it where you're actually going to walk and use your yard and then put plants back in that other half. I talk about if you do that we could create what I call a new national park that will be over 20,000,000 acres in size. I call it home grown national park because we're going to do it at home. But 20,000,000 acres, if you add up most of the major parks in the U.S. it's still less than 20,000,000 acres so this will be the largest national park in the country, scattered all over the place but very effective and it can build biological corridors that connect the actual habitat fragments that we have out there which is vital. Because when they're isolated there's just a steady drain of species from those areas. So, this is, I think this is going to be an extremely powerful approach to conservation. I'm not going to give up on the over 60 crowd because they do have the time to do this. They love gardening and all they need is the message that plants are more than decorations. You know they've spent their life thinking plants are pretty and we're going to decorate with them and they are and we can. But they also have function. They're essential components of our ecosystems and we have to pay attention to that function and put the plants that are best suited for doing

particular ecological roles back in our yards. And I have found that when people learn that they get excited about it. They don't fight it. They say that's great. And it gives them a new reason to garden and they're out there working at it a lot more than the younger folks. The younger folks are rearing the kids and establishing their careers and they're really not thinking much about garden.

Judith: Except if they want the organic food. (Laughs)

Doug: Yes. (Laughs)

Judith: They want the organic food. But that's a good point because let's put the workforce that we have available to use making these changes and then that will filter down to all those that have busy life-styles like young families who are rearing the children. That's great. I like that. The Home Grown National Park – that's a great movement!

Doug: I hope so!

Judith: Yeah, I think it will be. Can we go back to talking about our insects in the suburban landscape and how valuable they are?

Doug: Sure, I talked about their role in maintaining food webs, but they are also decomposers, so they're the major organisms that are recycling nutrients that return nutrients into the soil so that plants can grow again. If we were to lose those decomposers, the earth would essentially rot because it would only be bacteria and fungi breaking down. Things would be much slower. We'd be this rotting mass. Pollination again is just critical and 80% percent of all of our plants and 90% of all of our flowering plants are pollinated by insects. Losing pollinators is not an option. And one thing that people think about, is if they see bumblebees and honey bees on their plants they're happy. They say okay, we've got our pollinators. But those are actually just a very few species of generalist bees. We have 4,000 species of native bees here and many of them are specialist. They will only reproduce on particular plant genera, like goldenrod for example. I think in New England there are 12 species of native bees that will only reproduce on goldenrod pollen. If you don't have goldenrod, you've lost those 12 species. There are another 11 species that only reproduce on native willow pollen and another 8 species that only reproduce on asters. We need a diversity of plants that address the needs of these specialist bees or we lose dozens and dozens of species of bees, which we can't afford to do.

Judith: Well I hear you. You've got some great statistics about that. I don't think most of us understand that there's 4,000 pollinators alone that are very specific to certain plants. We're not really taught about that. We're taught about how important the honeybee is and how people are monitoring those populations, for example, but there are specialist bees that work on the squash plant and on the sunflower plant. And we're not really taught to look for them or to value them in a sense. These kinds of statistics get the

message home about how important our own backyard can be in maintaining, creating and continuing biodiversity.

Doug: Can I just make a comment about that term backyard? I'm fighting against that because that eliminates the front yard, which cuts our conservation area in half. It also implies that what we're talking about is so ugly we have to hide it in the backyard, which is not true. You know the most powerful plant you can put in your yard is an oak tree. Oaks are beautiful plants. Put it in the front yard and now you've got a really conservation powerhouse there. There are 557 species of caterpillars or 557 species of bird food that use oaks in my area in the mid Atlantic states. A yard without an oak is a yard that's really lost a lot of its potential.

Judith: I agree with you. Unfortunately, where I lived, I watched a new housing development going in, a large apartment complex. And that particular area was filled with oaks. I think they were mostly red oaks and they razed a whole hillside. I'm going to assume something like a couple hundred trees are gone and they were all in the oak family and that made me very sad that there was no awareness in our town planners for agreeing to this kind of development without respect to the value of diversity in the landscape.

Doug: You know if we put monetary value on what these trees are doing for us. If we had dollars associated with their role in maintaining the watersheds, with their role in sequestering carbon, with their role in supporting food webs, that would be a lot of money you're throwing away, and then people would value it. They'd say, okay this patch of woods is way too valuable to cut down. It's not worth another apartment complex. We'll do that some place where there are no trees. That's all you need to do is to recognize that these ecosystem services are not free. We've never paid for them in the past, but we have to start paying for them in the future. And if you're going to cut down those oaks, you've got to pay for it. It's going to cost you because we have to replace them some place else. That will change the way we think.

Judith: Yeah. Do you see that happening in the communities around you or with your university connections? I mean are we getting that message?

Doug: Well I'll tell you whose getting it, Costa Rica got it awhile ago when they realized their number one industry was eco-tourism they started to. They changed the tax structure and paid property owners to reforest their land which improved the watershed to the point where the coral reefs started to come back. All the things that support eco-tourism, and the birds that people come there to see. They were down to about 40% forested and they made these changes in the tax structure and I think they're up around 50% at this point. It's working in other words. People respond right away. First of all, they make a little bit of money and it's culturally acceptable now. You're not the odd guy to protect your tree but everybody understands, hey that tree is worth something. It's an attitude change. I don't see us doing it in the U.S. yet, but I do see us heading in that direction.

Judith: Well that's something. I guess it's going to happen one talk at a time, planting a seed and hopefully with all the talks that you do and get somebody in that audience to go back home and rethink their landscapes front and back, we're going something. I do think front yards have taken off a little bit though in the last few years. People have been fighting community ordinances and really planting some beautiful things in their front yard; food and flowers and they're pretty. Yes, they bloom and then they wane and then they're going to have weeds, or they're going to have stems at the end of the season, but people are maintaining it and they're lovely in some of the communities I've been following a little bit online. So that kind of thing is happening.

Doug: Well this is where knowledge is power. Inside those dead stems is where those native bees spend the winter. When you cut them all down you've just throw away where those native bees we're trying to save spend the winter. We have to find ways to keep it neat, keep it attractive but keep it diverse and allow things other things to share out land with us.

Judith: Based on that, would you say, sort of as a garden tip, you know I usually leave all my goldenrod, Joe-pye weed, all those kinds of stems, I leave them there through the whole winter. But when it comes to spring, do you recommend raking them up, burning them, you know having a small burn in your yard? What is your recommendation?

Doug: That's a tough one. Mulching them or burning them certainly kills all the things that are within them. If you're trying to maintain a meadow you do have to do that once in awhile or the woody plants come in and replace it. Ideally, for people who have sizable properties, you recommend that you burn or mow a 1/3 and a 1/3 and 1/3. Then every year you're only treating 1/3 of your meadow and the other 2/3 go untreated. You will lose the things that are in that 1/3 but you'll also restore the meadow and then the other 2/3 will recolonize that disturbed patch each year. Any one space is only burned or mowed once every 3 year. But if you have a small garden and you've got these stems you want to neaten up, I suggest you cut them off and yes leave them all winter because that's providing seeds for those sparrows and birds that spend the winter here all winter, but then cut them off at the base you know right around now, the end of March and rather than just burning them or throwing them away, maybe tie them up in a bundle and stand them up and this is where you could use the backyard. Some place where anything that's inside those stems can still survive and then emerge, because they really don't emerge probably until May. When we kill them in April or March, they're still dead.

Judith: That's interesting because people ask me that because I took my suburban backyard and created a meadow. That's what my book is about, "At The Garden's Gate", and I left all the stems, as I've said, throughout the whole winter, but when it came time for spring I wanted to pick some of them up. I didn't get 100% of them up but I wanted to pick some of them up just to neaten up the space. Because then there's the other side of the coin where gardeners will say, well if you don't pick them up you're harboring disease and your harboring pests and that's going to ruin your coming garden.

Doug: Well, I think we over-blow that, you know? Who was picking them up before we got here? Everything wasn't disease filled and pest filled. It all was in balance. Yes, it's true that you know everyone sees an insect and they say, well it's a pest. Well a lot of the things you're harboring are the things we're doing on purpose. We want those to be around. One of the big things that is hard for people to accept is, if you have these native plants and these insects come and start to eat them, they in turn will attract their natural enemies. You'll have all the little hymenopter, the little wasps that parasitize those caterpillars. You have the birds that eat those caterpillars. You're not automatically going to have a defoliated yard, you're going to have an ecosystem that you call entrophic balance. You're going to have the natural enemies that keep those herbivores in balance. So that's what we're striving for. Sometimes it's harder to achieve than other times but yes, you're going to have some living things in there and that's why you do leave that stuff.

Judith: Right and then what we forget is the holistic nature of this, let's just use the meadow for example, is that there's a checks and balance in there.

Doug: Exactly, that's what we're talking about.

Judith: Okay. All right, well before we close I would love you to just perhaps reiterate three tips that our listeners can take away today that are practical.

Doug: Okay.

Tip #1 would be to consider **cutting the area that you have in lawn in half** and then fill in the other half with productive plants. This doesn't mean that you can't have you know an attractive Crape Myrtle or something but when you measure the native versus non-native plants in your yard and it turns out to be 80% non-native, that's not an ecosystem in balance. Cut the area in lawn in half would be tip #1.

Tip #2 is to consider **supporting the local pollinators** and that means you want to put in the plants that support the most specialist, which would be goldenrod and willows and asters and sunflowers. Those are the top plants in our areas. And you also want to consider plants that are blooming throughout the season. I don't mean a single plant but you need a sequence of blooms from late April right through October. That way you'll support a diversity of bees that have a different lifecycle over the course of the entire season. That would be tip #2.

Tip #3, most people don't own enough property to really zero in on a particular creature they might want to save. But let's say you want to help the Monarch. **Team up with some neighbors** and help create a Monarch migration corridor. Everyone knows Monarchs need milkweeds and they do when they're developing. But they also need to migrate all the way to Mexico and that means they need fall blooming plants, not just in your yard but all the way to down to Mexico. This is where social networking can help and you meet people that are likeminded and it makes your conservation effort much more effective.

Judith: Those are great. Those are very practical things that people can think about today and actually act on today because here in New England we're in April and it's time to get outside and look at our yards differently, consider the plants we want to purchase, find the native plant nurseries or at least find your local gardens supply centers that have anybody there that's knowledgeable about supporting our pollinators and our ecosystems today. So that's great.

And Doug before we sign off, I'd love you to include your contact information. You do have a book; you've got a couple of books out there. You've written in many different types of publications. Could you give our listeners that information?

Doug: You mean my e-mail address?

Judith: Your e-mail address, where they can find your books.

Doug: Right. You can find both "Bringing Nature Home" and "The Living Landscape" on Amazon or if you're a group and you're having a conference you can order it directly from Timber Press at half price and then sell them at your own profit. A lot of people do that.

My e-mail address is [dtallamy@udel.edu](mailto:dtallamy@udel.edu)

Judith: Great. Do you have anything else you'd like to leave us with?

Doug: Plant an oak!

Judith: (Laughing) Plant an oak! I love it! Oh, well, I can't thank you enough for joining my listeners and me today. This has been great and as I said to you before, I feel this discussion is so timely for all of us to have profound inner change with how we look at our outer landscape. I'm going to sign off here. I hope all of you feel as inspired as I do by Doug's talk and his very practical advice. And again, I can't thank you enough for joining us today.

This is Judith Dreyer, author of *At The Garden's Gate* book and blog. For more information go to my website [judithdreyer.com](http://judithdreyer.com). There will also be a written transcript of this podcast available when it's released.

I like to end *The Holistic Nature of Us* with a quote from Paul Hawkins. He's an environmentalist and author, who reminds us

*"Sustainability, insuring the future life on earth is an infinite game, the endless expression on behalf of all."*