

Podcast Series: Holistic Nature of Us

Episode # 27: Meet Kat Van Deusen

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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.

And today I am delighted to introduce you to Kat Van Duesen. She is a scientist, an herbalist, an adventurer and an eco-warrior. Kat and I go back a few years to a wonderful gathering called The Strawberry Moon and as fellow herbalist we had a lot to share and to learn at that gathering. Today's pod cast will hopefully bring several beautiful nuggets of insight from Kat with her work in phytoremediation.

So welcome Kat!

KAT: Hi, how are you?

JUDITH: Good, good. Tell us a little bit about your background.

KAT: Background, too many years of school I always say, but very interested in molecular plant biology and the concept that nature can be used to heal if we can unlock the secrets of nature. I've done a lot of things. I've surfed around the world, lots of sports, played professional woman's

football, all sorts of crazy things. I've come to the conclusion that we really need to have a harmony with nature.

JUDITH: Well that's part of the philosophy of this pod cast: to try to connect those dots more clearly. But tell us about, you shared with me that your grandmother taught you a lot about nature. Just share a little bit of that with us.

KAT: Oh, you know the thing is that like most Americans I have a very strong immigrant background, I'm going to say. When we did our Ancestry.com it came back with the entire world. And I like to say that because I think it's important. We build up these divisions in this world. We build up these walls. My grandmother taught me that all people are equal, and we need to help them whenever they come to us with problems. And what she did was, she taught me about how plants could be the total key to helping people because people think, "oh it's this, it's that" and actually living holistically for her was being in harmony with nature and using nature to heal.

JUDITH: My native elders tell me that what we need is usually right under our feet.

KAT: That is correct, yes. In fact, the natives, and I'm going to say Native American elders, Nations, the native people of this country North America, actually taught a lot of stuff about herbalism that was not transferred as much to the immigrant population. But the immigrant population brought a lot of their herbs from Europe and that was key because when they did so they married the concepts of North America and Europe and actually those herbs have gone all over. The one thing I see in nature when I go out and do my wetland delineations and all the surveys I do for habitat and community is that there are a ton of plants out there that shouldn't be there but that were introduced, and they are healing plants. And those plants can be used if you know that the skullcap comes out at a certain time in the summer and I had to harvest a certain piece of it. This Echinacea? What do I harvest of it? All the herbalism components have been married together between the Native American populations and immigrant populations.

JUDITH: Yes, and they (plants) travel and that's nothing new. Plants do travel around the globe. So, let's go back to the basics. Tell us about your field of work, which you title phyto-remediation. What is that?

KAT: So, when you're in college you think, "oh I want to save the earth", right? But then what you do is you kind of take a generic path and hope for the best that when you come out you get a job. So, when I came out I got a job and I said, "oh, biological environmental engineering" and I went into that field. Phyto remediation is the sum total of working for at least 2 dozen years and saying the earth can heal if you allow it to. And you know, the important thing is that now I work with developers and other people. There had to become awareness at a very high level that yes, this is the way to go. Phytoremediation is the study of plants, fungi and other microbial (life). It's a lot of microbes, other things to heal the earth, okay? But why is that special? It's not special. It's just the humans have recognized it as special. Humans have finally understood, "oh the earth knows how to heal itself", and all I have to do is transfer that knowledge and make my remedies, or remediations as they call it, match what the earth would do. And that's what I do. I match what the earth would do if it was presented with these variables on, "oh there's too many metals". There're too many explosives. There's too many radio-nuclei. Whatever the contamination may be, I find a solution with plants.

JUDITH: So, your company, where you work, actually gets hired to go to a place where there might be a toxic spill of some sort on the land, on the waterways and then you try to figure out where that is and then you match it with plants?

KAT: That is very much right. What we do is we say, okay here are contaminants. And the contaminants can be spilled, they can be introduced. There are a lot of pathways or migration pathways that they call it that enter into it. They infect the soil, the water, the vapor of that land. And what we do is we come in and we say, alright here's the solution to cleaning up. Now you may want to put a building, or you may want to put something in here but I'm going to clean up your area and then I'm going to add to that and create a biosphere, a new habitat, a new area that's going to clean that up slowly over time. And that's basically what I do. I sell them on... I can figure out your property, get you what you want and then also introduce this. And then, what the good thing is about it is, people get parks. People get bird sanctuaries. People get conservation zones that they can go and interact with nature, even in the worst communities. I try to do this in the worst, what they call NIBY communities. It's "Not in My Backyard". A lot of the environmental stuff was shunted to the poorer communities. Dump it there, do this and then those people had terrible health as a result. What we do is

we come in and we clean up the territory, clean up the area and then say, hey, now we've introduced this new park, so you work with the ecological component which is nature. We work with the scientific component which is the regulatory agency and with people. The people want something good. They want like a cool place to hang out; we give them that. And as a result, we're very successful in transferring properties that were normally no way that they were going to transfer. And we're creating a new system in the world, I think, where humans are in harmony with their environment and they can go and visit those places. I think that's important.

JUDITH: Well we do know, I have a background in cancer nursing, and we do know that certain locations have very high incidents of very specific diseases. I worked in a corridor in New Jersey and there was a very high incidence of certain cancers because of the factories that were there with all that they were either putting in the air or putting into the water system. And some of those companies, you know, 30 years later they go away. They fold. We have empty buildings yet the land is toxic. So you're saying you can make recommendations to put in plants X, Y and Z over here and there will be some remediation to that soil, to that water, to that air quality, and that's in the middle of a city, right? I'm hearing you, right?

KAT: Absolutely, positively correct. And I'll tell you what. You know what's happened over the past 30 years? At a lot of these plants, those golden parachutes let off. Those guys make a lot of money, they get out and then they leave that area. Those are called Super Fund sites, okay? They're the worse sites in New Jersey. And what I do is I deconstruct the Super Fund site and I recalibrate it to new parameters, okay? And those new parameters are: can this be livable? Can this be a good place? Can this create something that's positive? That's what I strive for. I think that's important. Humans think that's important, right? So that's the lowest parameter on it, can this be good for me, right? The important thing is, is that all these locations that are cancer ridden, they have high amounts of groundwater, what we call contamination, soil contamination. The groundwater actually gives vapors and makes it even worse. So, by putting plants in, we can actually curb that. I can actually create hydraulic containment. I can create an area that will no longer be toxic to humans because humans aren't eating the grasses I plant or the other plants that I plant, and neither are the animals. The animals are kind of smart. They realize this area is not good for consumption. I'm not going to go there. And what happens is that you create a new kind of habitat. I like to think of

it as 21st century habitat. When Olmsted created parks in New York he created them for a 100 - year plan. That meant he knew he was going to be dead, but he created something that was going to be beautiful 100-years ahead. I try to do the same thing.

JUDITH: Let me ask you this from a scientific point of view, is it true that when you plant certain plants in an area where there is some toxicity that the plant structures actually mitigate and breakdown the toxins and what they expire shows that there's an 80% healing, or an 80% remediation. Is that true?

KAT: That's the golden, okay. Let me tell you this, plants will assimilate and metabolize the contaminants. But the problem is that different plants metabolize differently. We have to go in and say, just like gardeners, how's the light levels? What kind of soil is it? Is it too clay? Is it too sandy? Do we have good soil levels with good pH? PH affects it a lot. Can I plant these plants that I want to remediate with or do I need to use something else? So, what we call that is a habitat and community survey. We go in and see what the indigenous plants are skewed to. Oftentimes they are skewed to the metabolites, okay? So, let's say we're in a metal zone. We're going to use brassica, mustard plants. Mustard plants metabolize metals fine. Phragmites, cattails, you know wet system? They are the best thing. They stabilize. They don't cause erosion and they eat up all the catabolites. They eat up all the things that are bad; heavy metals, PHC's (those are polyaromatic hydrocarbons), all these things that we are like "I don't know". It means that if there's a sheen on the oil, that plant can suck it up and get rid of it. There are metals that contaminate. There's different things in the soils that you never see as a human. You're like totally oblivious to it. But the chemical corporations dump them into the waters. They drop them. They don't care. And usually it's the poor communities that live at the end of that stream. The fact that all of these plants can do this, I studied intensely when I went out into the field I would go out to the field and say, what plants can really handle this? If I'm in the middle of a super fund site and all I see is ferns, what kind of fern is this? I categorize, identify that plant and then say, now I can use that on a new site and break down the contaminants in this site. The important thing is that no longer do we have to be blinded by, I don't know, you can use that to your advantage.

JUDITH: Well we do. We get very sad when we talk about contaminants but the solution is there and that's the message I want to give people. If we

look at nature, the solution is there for anything we can think of. Nature has been here far longer than the human species and has figured a lot out and it's up to us to pay attention and perhaps show a little respect for the intelligence that's there that has actually worked out the kinks for certain problems and has the solutions.

But you mentioned phragmites, and we think of phragmites in the gardening world as an invasive but you're saying it actually stabilizes that water system and helps clean it up.

KAT: Yeah. Well, it depends on where you live. It's an obligate hydrate plant. That means that it lives on the edge and it doesn't let things come in. You know what, nature is right there. It doesn't let all the contaminants come in too. So if you have phragmites what you need to do, it's an invasive but you have to think of invasives in an overall global sense. Invasives in your garden are actually telling you your garden is out of balance with nature. It's saying, "hey, you need to look at this." So I always tell gardeners to test their soil but not only test it for ph and some of the other parameters that they do, salinity. You need to test it for organics and I'll tell you why. Organics are the number one cause of cancer, especially like phosphate. You can not, I can not tell you enough that it is a carcinogen and using roundup as a way to barrier yourself from the phragmites, don't use those things. Instead use other plants that can block out the root system. For example, if I have a phragmites coming onto my property I'm going to set-up plants such as Maiden's Hair and other large boisterous root systems that are rhizomes to prevent that, hostas. Get out of my garden. I'm going to block that with plants. Plants are the best way to prevent other plants from encroaching. Don't use those roundup products. Don't use the nicotinized. Those nicotinized and glyphosates go right into your fruit. Your fruit, what your harvesting, you need to stop using those different things, those different pesticides that are made by Monsanto. I'm saying Monsanto. Monsanto just got bought by Bayer, so now it's Bayer but they're using that as a product relabel so that nobody thinks they're bad. Don't use those products. Instead use nature to keep out the invasives. Use heirloom products to keep out the propensity to incorporate random genomes that will basically hurt you and keep yourself clean.

JUDITH: Wow, that's a lot of great information. I find in my travels, I do a lot of talks to say garden clubs, etc. and I'm surprised at how little some of the garden club members seem to be aware of in terms of how nature works

as our partner with, what's the word I'm looking for? Don't use Round-Up is what I'm getting at.

KAT: And you know what it is? It's like a frame of reference. And from the 1900's to the 2000's we had a whole generation bought and sold on the idea that these chemical corporations will end our problems with plants. That's not the case, okay? These chemical corporations have created things during the 1940's, which was basically the Nazis, that are negative to society. You need to use heirloom species. You need to use old gardening practices. The Native Americans had a lot of gardening practices like hot peppers and marigolds interwoven with their gardens to create unfavorable insect paradigms, you know? That's the good thing. Use these things that were used. I always say they call them Victorian gardens. There's different names for them but basically it's like before we started inventing this very sterilized garden, we had a lot of names for things that worked. And that's what people need to do.

JUDITH: Well, we also had a lot of diversity in our gardens too. You know not just one row of peppers and one row of tomatoes and one row of cucumbers, but I think from my Master Gardener walk what I see is the more diverse the gardens are, the healthier they are. We want to keep that fungal system really intact that's beneath our feet. It's in the soil. We can not see it but there's an incredible network that plants talk and communicate with each other. And so instead of picking up every weed, what we do is we weed whack them down, but we don't take the roots out. We leave the roots there and then whatever we weed whack, just because it's easy, that ends up becoming compost for the soil and that helps keep building the soil up instead of putting black plastic down or other materials that actually hinder that fungal network from communicating with each other. It actually kills it. It disrupts the communication within the garden structure you know in various ways.

Can you give us an example of a site that you had great success with? You know, was it paint, was it metals? Just something that you worked on personally.

KAT: Okay. Well here is a great site and it's a good short one too. The site was basically, they had said that they had cleaned up the site but naturally all they did was dump everything into the ground and then pave over it. The back area was flooding, and they wanted an answer. "Hey, why is this

flooding?” So when I went out there I saw that it was a former wetland they had filled in, so we dug up the wetland and we found tons of landfill materials and we were like, “Oh my god, there’s oily things. There are metal things. There’s all this stuff in there.” But it was also in a soil system that was not good for building on. I convinced the builders that, hey, I will let you get your building built without any problems if you do this in the back. If you do this in the back it will be a good idea. And what I did was I convinced them on phytoremediation in the back. I prevented the oily water from entering into a stream system. It cleaned up all the soils on the surface so that the soils not only retained water better, but they actually were in a clean-up. Now it’s going to take 100 years to clean them up, but it’s going to do it. It’s going to ultimately do it. The owners weren’t exactly psyched about this, but they did see, after three years, that the plants grew in and they looked great compared to the landscape architecture of our other sites. Landscape architecture often has to deal with cultivars, like ornamental plants really and so what I say is, don’t use these, use these. And I’ll make them look similar, like the look that you want but only with trees that are actually going to break down the products and soil, herbs, all the rest of it. The key to the next ten years.... Because 20 years from now, 30 years from now, they’ll be doing this all over, is to make the esthetic one of the points that you need to do. You can’t just make it about, like, I’m going to clean up the soil. I’m going to do this. I’m going to clean up the water. I’m going to make it look aesthetically pleasing because that’s what the company will buy. And unfortunately, we are in a society where looks, superficial looks and I was going to say money, cost, is the most important. So, if you can do that, if you match these variables up, create an aesthetic that is positive, make everyone happy from the Regulatory Agency to the average homeowner, you have a win/win solution that will create the right dynamic for sustainability and redevelopment.

JUDITH: That’s beautiful, yeah. And those variables are important. Our society is complex, and I think it’s great that a company like yours and the work that you do takes all of that into consideration, because we want things to be esthetically pleasing. We want to live in communities that are safe so that our children don’t have diseases, or we don’t get diseases. And again, as a person who did cancer nursing several years ago, I know of pockets in our Northeast areas that unfortunately were contaminated, and how do we clean that up?

Let's segue into some practical tips for the ordinary homeowner or the farmer, that you feel is not only useful but something that they could do today if they wanted to.

KAT: Great, great, okay.

1. So number one on my list is **do not use roundup or nicotinoids in garden**. Those things will bio-accumulate in your system and are very carcinogenic.
2. **Do not create an environment that will allow invasives to come in**. Make the perimeter of your gardens, use root systems that will keep out those invasive plants naturally. Use marigolds, use red devil plants, any kind of pepper plant, chamomile, Maiden's hair. All of these things can be beautiful, yarrow, use some wild things. Allow the elves to come into your property and propagate, I would say, you know?
3. And the third tip I would say is **make sure you understand what's going on on your property in terms of your soil**. Make sure it's safe. Make sure that you are doing everything in your power to not introduce contaminants into your family.

JUDITH: Yes and I hope, some of my listeners may know this, but I do like to promote the Master Gardener Program. Every state has an agricultural extension service and they usually offer for a very nominal fee, instructions and a kit to test your soil for whatever you want to plant. If it's going to be berries you mark that on the form. If you want it to be vegetables you mark that on the form. They will give you an analysis and at least get you with beginning steps of how to amend the soil and keep it as healthy as possible for your purpose. There are other labs that have a more extensive analysis, which is what I chose to do this year. I don't know if you know of the **Bionutrient Food Association**, but they have excellent, excellent material on soil and soil health. Because if we have really healthy soil, we grow very nutritious food, you know? We don't grow food that looks pretty but it's empty, you know, or missing nutrients. They're not as strong nutritionally as those foods that are grown on really healthy soil.

So those are great tips. And what about heirloom products?

KAT: Well I have to say the best that you can do right now is go with heirloom products. When you go with a GMO product you don't realize

how much of it is genetically created. The problem with GMO products is that they're introducing pesticides, herbicides that are actually carcinogenic. That's why most of the world is basically rejecting our products. They're like yeah, your GMO stuff is bad. So, the important thing to remember if you can, find heirloom seeds, which a lot of farmers sell. You know if you go to that agricultural day you'll get like heirloom seeds. Get those! Use those! Incorporate them into your garden. The butterflies and all of the rest of the pollinators will not get affected. You'll make your entire habitat stronger as a result.

JUDITH: Well Doug Tallamy was a guest on the show. He's the author of "*Bringing Nature Home*". He's a bug guy and he was saying that 4,000 species are in danger of becoming extinct today and that means if those bugs are needed (we're not taught that insects are so vitally important for everything up the food chain) and if we lose them, we start losing other species, then we're really in deep do-do. And we're at a tipping point, it seems, in our habitats today. So that's why I feel what you have to offer is so timely, good and practical.

Kat, do you have any contact information, website, books?

KAT: Sure. Well I am writing a book, obviously everybody is always writing a book, but if you want to reach me try the environmental logic website. I have contact information on there and I will be happy to answer your questions, provide you estimates, tell you what to do in a situation. Also, feel free to reach out to me. I always try to inspire people and try to get people on the right path, including our young people so that they can help. I want everybody to help the planet much more. I can't say enough. I feel like anything that I can do is always good.

JUDITH: Well thank you. That's great. And that's

contact@env-logic.com?

KAT: Correct.

JUDITH: We have a written transcript for every pod cast, so that information will be there.

Alright, I can only say thank you for joining us at the Holistic Nature of Us. I think it's inspiring, it's practical and like you, anything we can do to get

these children on board at a young age and get them involved in nature is the way to go.

I'm Judith Dreyer the author of "At the Garden's Gate", book and blog. And my book is available through my website which is www.judithdreyer.com as well as other distribution arms such as Amazon. The pod cast is available on I Tunes, Spotify and You Tube and Libsyn. And, I'd like to remind all of you to please share these pod casts. Let's get the word out.

I like to end with a quote from Paul Hawkin. He's an environmentalist and author who reminds us,
"sustainability, ensuring the future life on earth is an infinite game, the endless expression on behalf of all.

Bye for now and have a great day.