Nate Hagens (00:00:02):

You're listening to The Great Simplification with Nate Hagens, that's me. On this show, we try to explore and simplify what's happening with energy, the economy, the environment, and our society. Together with scientists, experts, and leaders, this show is about understanding the bird's eye view of how everything fits together, where we go from here, and what we can do about it as a society and as individuals.

(00:00:33):

I have often said that in a materially constrained future, a great simplification, we are going to have a simpler society. And with that, a return to living in a more integrated way with the natural flows of the land. With me today is Oregon State Professor, Andrew Millison, who is an expert and an educator in the field of permaculture. Permaculture is a design system which focuses on doing just that, working with the land instead of against it. Andrew founded the Permaculture Design Education Program at Oregon State University, where he is the education director and senior instructor with over 25 years of experience.

(00:01:20):

Andrew also has a very popular YouTube channel, travels the world, documenting epic permaculture projects in places such as India, Egypt, Mexico, Cuba, and throughout the United States, which he shares on his YouTube channel. In a world that often feels out of our control, permaculture design offers a way where we can work with the land and see improvements right before our eyes in food, water, social capital.

(00:01:52):

This podcast is mostly so far talking about the constraints that are leading us in the destination of a great simplification. But increasingly, I want to have guests on like Andrew to talk about responses, especially things you can start doing right now in your own community wherever you live. Please welcome, Andrew Millison. This was a great conversation.

(00:02:18):

Hey, Andrew.

Andrew Millison (00:02:32):

Hello, Nate.

Nate Hagens (00:02:33):

Great to see you.

Andrew Millison (00:02:35):

Good to see you as well.

Nate Hagens (00:02:36):

The last time we spoke a couple of months ago, you were about to head to another trip to India. How was it?

Andrew Millison (00:02:45):

It was unbelievable, I've got to say. It's hard to give a short synopsis, a few words without just being incredible, mind-blowing, crazy. But it was really, I'll just say I felt my brain shift at some point, and I don't know exactly how, but I felt like things change inside my head, taking in the amount of incredible information that I was witness to. So, I'm really excited to share the trip with everybody. It's going to be 14 episodes.

Nate Hagens (00:03:26):

Wow. I want to get into that a little bit with you. I've never been to India, but you and I talked about a mutual friend, Vandana Shiva, who is inviting me to go there and make a movie on Yoga of the Earth, which is not yoga, the postures, but yoga as in the daily practices of being in community, working with the soil, regenerating the land and the holistic experience. I've never been to India. It boggles my mind that there's five times the population in India as the United States, and in many ways, their practices are ahead of where we are and where we need to be heading in the future. I assume that's why you're going back there so often.

Andrew Millison (00:04:17):

Yeah, I'm going and I'm focusing on these very progressive visionary projects, and India has problems that multiplied from what we have as well. So, it's a mixed bag, but it is, I believe this year becoming the most populous country on the planet. There's two things. One thing is if this revolution, the ecological watershed revolution is going to happen somewhere, it looks to me like it's going to be India. And if it doesn't happen in India, then it's going to be great tragedy because of the population, water, climate pressures that they face there. But I see a lot of tipping points being reached there that we can speak more about.

Nate Hagens (00:05:18):

Yeah, I'm really interested in that. You are the first guest of 70 that I've had on the show who's a permaculture expert. So, let's just take a real brief background. Can you briefly describe what is permaculture? How did it come to be, real briefly, and how did you get involved in it back in the day?

Andrew Millison (00:05:40):

Yeah, so permaculture is a design system. Many people think permaculture is a gardening technique or a set of techniques, but it's really not a set of techniques. It's really a way of seeing, it's a particular lens and it's a particular design protocol. It's a series of steps that you follow in order to originally design landscapes, properties, watersheds, farms, villages, homes, suburbs, urban areas. And then, as it evolved, it has expanded into social realms. Some people think that permaculture can be used to design everything. I tend to keep it still as mostly a land design and stewardship system.

(00:06:31):

And it was developed in the late '70s, early '80s in Australia by this guy, Bill Mollison, and he was a professor and he did all things. He was a trapper and a logger and a jack of all trades. And he had a student, David Holmgren. Actually, the entire design system, as he explained in his autobiography, it came to him in a flash. It was like a revelation that he had. He saw the whole thing all at once and saw how he had to spread this system around the world.

(00:07:12):

And so, when we look at traditional people and we look at people that are living in place without import of resources, living within their means, and we look at the different patterns and systems that people have used to support themselves. Water, food, energy, medicine, housing, materials, all these different things. Permaculture is the system in which we would design sustainable human settlements that take care of all the different needs that people have.

(00:07:50):

And so, this point, we're far enough, in where it's a very established system. People have been testing and improving and figuring out this protocol, and it's a pretty advanced design science at this stage in the game.

Nate Hagens (00:08:04):

So, is it designed with a goal of being more sustainable or permanent permaculture, or why would someone choose that and why was it designed?

Andrew Millison (00:08:17):

Yeah. So, one thing that Mollison recognized was the destructive nature of conventional agriculture for starters, and the impermanence of conventional agriculture, logging, destruction of watersheds, destruction of water cycle, erosion of soils, extinction of species, how human sustenance, our sustenance was on a large scale degrading the landscapes. And he said, "This is very impermanent. We need a system that actually has a permanence to it. We need a system that supports our needs that also improves ecosystems, improves water tables, improves soils, increases biodiversity, increases resources as part of the design of the system."

Nate Hagens (00:09:09):

So, is permaculture synonymous with regenerative agriculture?

Andrew Millison (00:09:15):

Well, not really, because regenerative agriculture is the agriculture aspect. So, permaculture began as permanent agriculture, but it really evolved into permanent culture. So, regenerative agriculture, you don't look at the architectural planning of a village, a city, a town. You don't necessarily look at road orientation, transportation, energy systems. It's really farming where permaculture is the whole system and the agriculture portion is just one aspect of it.

Nate Hagens (00:09:52):

So, you have a very popular YouTube channel devoted to permaculture practices, especially water. Is there a growing subculture in the USA aware of the importance of land and systems and permanent agriculture and related skills to our future? Or is it still a pretty fringe thing?

Andrew Millison (00:10:14):

It's definitely growing, and if it is still a fringe thing, then I would say that those fringe people are finding themselves in positions of influence. Partly because I do have a lot of visibility out there. I am contacted by different people in different fields almost daily, whether it's people that are in universities, people that are working for municipal governments like venture capitalists, billionaires who have some project that they want design help on like the span of people who are interested in this, at least from, who are contacting me, is like, it's really broad.

(00:11:07):

I don't want to confuse my own success with the success of permaculture. I don't know if it's just that my profile has risen, so people are contacting me or those people are always around. But at least from where I sit, I am seeing a lot of people, a great deal of interest, and it's not just the fringe.

Nate Hagens (00:11:30):

The same with my work, Andrew. It seems to me that we're approaching a biophysical phase shift where the cultural stories are about money and technology and efficiency, but Ukraine, Russia, last week, the Silicon Valley Bank, these are warning shots across the bow that our system is complex and maybe fragile and unsustainable. And I think there is this natural, deep human connection to the land and the biogeochemical or physiological processes of the sun and the rain and the soil, and it just feels like home to us. What do you think about that?

Andrew Millison (00:12:18):

Absolutely. There is what I would hope would be the natural evolution of our species towards a, like higher thinking organism that actually can live harmoniously with the planet. I would hope that we're getting there, but there's also just the fact that anybody can access this information, that they just have to have a thought about it and get on the internet and start typing out some words, and they will be brought down this rabbit hole that will give them this huge body of information and this whole paradigm, really. So, I think there's a lot of different things going on simultaneously.

Nate Hagens (00:13:05):

So, your work and others are acting as an Overton window to stretch the minds and skills of the scout team of humans that do want to approach that larger, longer-term, human sustainable cultural evolution. I think that's awesome. So, you're known as a water expert, but how did your starting your education in your practice of permaculture - I think I read that you started in the hot, dry, arid climate of Arizona - how did that affect the way that you approached and understood permaculture?

Andrew Millison (00:13:40):

Yeah, so I studied permaculture when I went to Prescott College back in the mid-nineties. And Prescott College at the time was probably the only college or university in the United States that had a permaculture class, and the class was held in Southern Arizona. I took my permaculture design course in 1996 with Barbara Rose and Brad Lancaster, and then I took an advanced course with Tim Murphy down in the Shirakawa in '97. And in an arid climate, when you learn permaculture, it's all about water. The patterns of water flow are very, very stark. The landscape is very clear, the atmosphere is clear. You can see the mountains, you can see the watershed, you can see the patterns.

(00:14:33):

And when you practice water harvesting and permaculture in a dry climate, the ecosystem, the landscape is so responsive. In an arid climate, things are so responsive to just a little bit of extra water. So, it's really easy to see the effects of permaculture in that landscape because it's like the color green on the color brown, and you can watch the green part grow, basically.

Nate Hagens (00:15:06):

At various timescales, Liebig's Law of the Minimum could be finance and trust right now, and in the next decade could be oil, a cheap oil, but in the next century where humans live, it may be water in many places. Water in the long run is way more important than oil. Yes?

Andrew Millison (00:15:28):

Yeah. It depends where you are, for sure. There's a lot of places where we're already there. It's interesting when you look at places like, oh, the Gulf States and you find out like, "Oh, wow, there's a whole desalinization grid linking the Gulf States," this water grid to supply water to places where there's just is not that water. And, of course, the desalinization is very much dependent on fossil fuels. It's high energy intensive. You look at places like India, it's like monsoonal rainfall. The whole civilization there is dependent on this particular rainfall pattern.

(00:16:09):

And there's lots of places where we can see the roots of many conflicts between nations. We can see that they start with water. I don't think it's in the future. I think it's just in the background.

Nate Hagens (00:16:23):

So, with climate, and this is going to be a 75 to 90-minute podcast, it could be five hours because I have so many questions for you. But with climate, there's going to be a higher standard deviation of rainfall as evidenced by this week, there's huge floods in Monterey, California, et cetera. Does permaculture deal with only arid dry, like how do we get more water? Does it also deal with too much water issues and how to deal with that?

Andrew Millison (00:16:51):

Yeah. Permaculture deals with the whole range, basically. Permaculture is a design system. It's a lens, it's like a pair of glasses that you could put on, and you can basically put those glasses on and you can apply this permaculture perspective to any situation, any climate zone. The Permaculture Designer's

Manual is divided into, there's the arid chapter, the tropics chapter, and the temperate chapter. That's oversimplification, you might say, of the wide variety of climate zones in the world, but definitely, it's not just dry areas.

Nate Hagens (00:17:34):

So, it's a design lens. Is permaculture then a one size fits all concept, or is there something that needs to be heavily adapted based on the specific land and environment you're working in?

Andrew Millison (00:17:51):

Yeah. Permaculture is a site-specific design system, meaning that this lens is a way that you would look, analyze each individual site and come up with a unique design. So, it's like there's art. There's artistry to it where, I mean, Bill Mollison said, "Every permaculture is different." And it becomes a unique expression of the landscape and the collaboration between the people on that landscape and the natural forces.

Nate Hagens (00:18:26):

So, there's like a bible or a set of design principles globally, but then there's going to be little specific guidebook that have to be developed locally based on the conditions of that watershed or area of the planet. Yes?

Andrew Millison (00:18:44):

There's the Permaculture's Designers' Manual, and there's a lot of other well-known books, but then there's some really great, very specific books like The Tropical Permaculture Guide, for instance, that was written by a guy in one of those islands, right by Indonesia, I'm blanking on it. And then, a lot of people have written articles and looking at particular tree varieties in Colorado, and everywhere you go in the world, you have a different palette of plants. You have a different dynamics. Even though you might be in an arid climate, things are tweaked a little bit more differently from each other.

(00:19:35):

Basically, when someone goes and creates a permaculture system in a particular area, then they become the researcher in that area. They're testing out plants, they're testing out different systems, and they're coming up with the pattern language of appropriate systems for that place.

Nate Hagens (00:19:54):

And is there a network that people can learn and share and collaborate globally or regionally on these individual designers that you just described?

Andrew Millison (00:20:06):

Yeah, I would say that there are many networks. The permaculture system was set up not as a top-down organization, but more of a mycelial network. So, there are independent institutes spread all over the world, and those institutes are usually the place where both social communication and as well as

techniques, skills, workshops, resources are concentrated. And there are different levels of functionality depending on where you are.

Nate Hagens (00:20:41):

Is that something that could really be improved to help knowledge spread and get this one to two orders of magnitude bigger if there were more resources and strategy on how to share information around the world?

Andrew Millison (00:20:57):

There's certainly a lot of people who have focused on that. There's the Permaculture Global, which is a website put together by the Permaculture Research Institute. I have my own networks of my alumni and such, and there's various different organizations around the world. But the point of not having it as a top-down organization in its outset, why Bill Mollison basically designed it as a mycelial network, part of that was so it could never get taken down. It could never be destroyed by one particular hub. So, there is no one centralized encompassing network by design because if there was only one centralized encompassing network, then there is one potential point of failure.

Nate Hagens (00:21:50):

Wow. So, it's one of the original pillars of decentralization, if you will.

Andrew Millison (00:21:57):

Yeah, it's been decentralized from the very get-go by design. And some people say it's actually the largest aid and relief organization on the planet. If you actually took all of the decentralized people that are working for disaster relief, refugee relief, helping people in need around the world, it would surpass the largest, any organization that existed out there.

Nate Hagens (00:22:29):

Wow. You just got back from India, you said you're making 14 videos for your channel. Those are videos of Indian people working on water and permaculture-related issues that you're going to share with US viewership?

Andrew Millison (00:22:47):

Yeah. Well, interestingly, the first series that I did, India's Water Revolution, which I published in 2020, which is seven episodes. I thought I was making it for the US population, but once I put it out there, it actually had as much or more viewership from India itself than from the US. So, this time, I'm not sure that I'm making this for the US population. I'm making it more for the world population. And the main person that I'm working with doing the editing, I edited the first one completely myself, but is a guy by the name of Ashok Mina who is Indian, and he's in Jaipur, and he was actually filming with me on about half of the trip.

(00:23:39):

I'm really happy actually that it's going to be edited in India because it's going to have a much more cultural sensitivity and nuanced understanding in the production. So, I'm not sure that it's for the Americans actually.

Nate Hagens (00:23:54):

That's awesome, Andrew, seriously. This is a species-level moment, and I think we get so insulated looking at the bizarro situation in the United States on so many levels. We forget we're only 4.5% of the world population, and there's lots of other countries that are adapting and responding to world challenges. So, good on you for doing the global story. Some of those videos, could they be applicable to US watersheds, or is the situation in India really quite different?

Andrew Millison (00:24:34):

Well, on a physical level, it's all very applicable. The watershed perspective can be applied to anywhere in the world because it's how the landscape is divided, and it's the basic management unit with which we need to heal the planet with. That's how we restore the water cycle. That's how we restore the forest, that's how we restore agriculture. Everything is on the watershed level, but it really became clear to me this time around the advantages that India has and the disadvantages that the United States has in just very base-level legal and infrastructure level structures that it makes it really challenging to do some of the things here.

Nate Hagens (00:25:29):

Could you give an example? You mentioned legal. What do you mean?

Andrew Millison (00:25:34):

Basically the average Indian village that I visited, right? I'll give you an example. I went to one of the most wonderful villages I've ever visited in Maharashtra, a village called Pemgiri. My wife and I, were the first foreigners to ever enter Pemgiri, okay? We were told, and they greeted us absolutely splendidly with dancing and parades, and it was a wonderful experience. And in Pemgiri, they have a banyan tree. It is a huge, huge banyan tree. It covers an acre and a half, and they say that they believe that it is the second-largest banyan tree in India. So, I'm like, "Wow." I'm like, "How old is this village?"

(00:26:25):

They're like, "Well, we don't really know how old this village is. The closest thing we could tell you is that there were texts that 500 years ago mentioned this banyan tree." They're like, "This banyan tree was big enough 500 years ago to be mentioned in some scriptural text or beyond that, we have no idea how old this village is." Now, because these villages are so old, they are working on the old patterns. And the old pattern, which is the pattern that I am promoting, is that land management is based on the watershed.

(00:27:07):

So, these villages, the boundaries of their villages are the ridges, mountaintops, hills that divide drainage basins, one from the next. And so, when you go and you look at all these villages in say, rural Maharashtra where I was, but it's pretty much everywhere that I've gone, their land units, the

community is deciding what's happening within their area, is a watershed. So, when the community decides to fix their watershed, to fix their land, they are fixing their hydrologic unit.

(00:27:44):

And so, the results are complete in juxtaposition with the United States where we have an arbitrary grid of property ownership that's just been superposed on a non-gridded landscape. So, the land management units are very typically arbitrary compared to water flow. So, that's like when you talk about legal, that's the legal property boundaries is like a huge advantage that you have when you have an encompass, when your boundaries encompass the watershed.

Nate Hagens (00:28:24):

So, our cities and villages and counties, et cetera, were made for political expediency or other reasons, but you're advocating for some sort of a watershed democracy or something like that, where from an ecological standpoint, the most important thing to our forests and our soil and our sustainability is the water. So, we should be making decisions based on the watershed that we reside in. Yes?

Andrew Millison (00:28:54):

Absolutely. And I don't know, it sounds like maybe you watched my video called America's Big Mistake.

Nate Hagens (00:29:00):

I didn't watch the video, but you and I have talked about that before. And the former governor of your state, John Kitzhaber, is a friend of mine and he's talked about we need to redistrict our cities based on watershed. So, talk more about that. What is watershed democracy and geomorphology?

Andrew Millison (00:29:19):

Yeah. It's not just our cities, it's our cities, our counties, and our state. So, watershed democracy was a concept put forth by John Wesley Powell, the early American Explorer. Lake Powell's named after him. And he actually suggested that we divide up state's boundaries in the arid West based on watershed boundaries, the ridges, the waterways, the hills. So, a state would be a watershed basin, and then the counties within that state would be smaller, micro-basins. So, your political administration corresponded with drainage basins, with watershed administration.

(00:30:06):

You said that's basically watershed democracy. And then, you asked about geomorphology. That's my favorite word. I always tell my students this, I'm like, "If there's just one thing I want you to learn in this class, if you do never come back, and you're just here the first two days of class, geomorphic, conforming to the shape of the land." This is, in my opinion, the fundamental flaw of our civilization is that our political boundaries and our land management units, property boundaries are not conforming to the shape of the land.

(00:30:45):

Because if they did, then decisions we made would have an integrated holistic landscape scale impact instead of a fragmented or fractured impact. And that's where when you go to India and you see actual political boundaries based on watershed boundaries, and then you see people who have gotten together and fixed their watershed and have very rapid positive results. It makes me pine for that system when you actually see it functional.

Nate Hagens (00:31:21):

Are the areas in India based on geomorphology and watershed, like the political boundaries of communities and such?

Andrew Millison (00:31:30):

Well, the village boundaries, yes. From what I see, and I've seen a lot of them-

Nate Hagens (00:31:35):

And this has been this way for a long time, presumably.

Andrew Millison (00:31:37):

Because it is the natural, logical way to divide landscape. This is how humans have divided landscape for millennia.

Nate Hagens (00:31:52):

Was there something like that that existed when Native Americans were the only ones on this continent?

Andrew Millison (00:32:02):

I'm sure that that was the case in, I mean, you could look at Native American land divisions, watershed, language, ecozone. There's a lot of different things that you can look at. One difference in India is that agriculture, settled agriculture existed for a very long time. And so, these village locations, because of the way the climate is and all that stuff are not nomadic. You had nomadic peoples there, but these locations I'm talking about are not nomadic. And so, it's a little bit different than prehistoric - I don't like that word prehistoric. That's assuming that history started when White people started keeping track of it.

(00:33:02):

But on this continent, there are certainly places where there's long-term established villages. I spent a lot of time on the Hopi Land and the Rio Grande River Valley, for instance. But there's also a lot of nomadic people moving around. And so, it's a little bit different when you're a settled agricultural society versus nomadic society, like established. In India, there's been people on the land doing agriculture for so long that all the space is filled in.

(00:33:42):

There's not a lot of wild areas at this point, I mean in the mountains really high up where things are so wet or very steep. But pretty much all of the land that can be settled has been settled with old established villages for a very, very long time. And so, it was long enough for the land boundaries and land divisions to become very clear for a long time.

Nate Hagens (00:34:14):

Two questions there. Presumably, soil health and soil regeneration, and along with it, replenishing the water table are our primary objectives there. If everything is full, there's nowhere else to go. So, you have to take care of your place, number one. And number two, when there's a young child growing up in these places, is it natural generation after generation for that young Indian human to learn about permaculture? It may not be called permaculture, but how to take care of the soil and how to do the right practices to have proper water table management, et cetera, whereas a young American child doesn't learn those things?

Andrew Millison (00:35:01):

Yeah. It's really easy for an Indian child to get the watershed concept because it is their village boundaries. So, there's not a big leap there. There's not a big learning curve that has to take place. That's a real advantage in making the shift because that already exists. And I want to say another thing that is a huge advantage there is the continuity of management, the unbroken continuity. So, I told you, these villages, they don't even know how old these villages are. These villages, 1000s of years old. The people that are living in those villages, their ancestors are the people that have been living there.

(00:35:53):

They have no question that is their place, that their ancestors have been there for a long, long time, and that their descendants will be there for a long, long time. There's no question about the continuity of landscape management. So, when they make a change there, it's a permanent change. Where here, well, first off, back to native tribes for a minute. I feel like I didn't give a good answer because I don't totally know how Native American people had landscape divisions, in part because there was a great fracturing.

(00:36:38):

The sacred hoop was broken. There was a genocide basically. And right now, the native tribes that still exist are, they had this deep disruption in their history not too long ago. So, that's probably one reason why I don't know the depth of these stories.

Nate Hagens (00:37:02):

The knowledge might have been lost.

Andrew Millison (00:37:02):

There's lots of places where the knowledge is still there. And I've been to a lot of those places and talked to a lot of people. But I'm just saying in juxtaposition in India, you have these villages. Yes,

there's been wars, there's been conquering, there was the British colonialism, but it wasn't like a continental-wide disruption, genocide of everybody there. There's a real continuity in many areas.

Nate Hagens (00:37:37):

When you say many areas, the majority of the land in India? Over 50% is managed and looked at this way?

Andrew Millison (00:37:47):

I would say more than that. I guess what I'm saying, many areas, in my mind, I am separating rural and urban areas because the urban areas have a lot, a lot of people and they've grown very extensively. And in many of the urban areas, the old systems have been paved over and polluted. One of the projects I looked at was actually in Coimbatore. It was a wonderful group that was taking, that was in the city of Coimbatore. I think Coimbatore is maybe couple of million people. I have to look real quick. It's not like a mega city. It's a fairly big city compared to America, American cities.

(00:38:32):

But they were identifying the old water system that was put in 1000 years ago by the Chola Dynasty. So, the Chola Dynasty, they created this series of check dams and diversions and lakes, and created a really, really large-scale water management system that only in fairly recent times went into disrepair, neglect with the industrialization of Coimbatore. So, this group I was with, the KKPA that I'm going to put a video about that was just absolutely wonderful group people. They basically were remapping, reestablishing the old canals, cleaning out these old lakes.

(00:39:18):

And when I say lakes, I mean lakes like 200, 300-acre lakes. This is in Tamil Nadu, South India. They get a lot of rain when they get rain. And in restoring, in locating, it's like archeology, figuring out and reestablishing this old system within the city. They are recharging the water table on a very grand scale and reestablishing water sources for farmers in the area. So, even in the cities, we see this restoration and we see this watershed-scale management that's been taking place.

(00:39:55):

But I would say, to answer your question, I would say, and I've traveled, I've spent six months in my life traveling in India. It's a huge country. I've been to a lot of places, and I haven't been to a lot of places at the same time. But I would say that when you look at the rural landscape, which is really the vast footprint of the country, the rural landscape is segmented by watersheds. So, I would say it's pretty, like you could say... I would have to get actual data to give you some percentage, but you could safely say that the overwhelming majority of the country is managed by villages at the watershed scale.

Nate Hagens (00:40:45):

Not to give you too much information, but with my right hand, I'm petting my 13-year-old black lab, and every time I stop because I want to write down a question to ask you, she nudges me and I can't reach my pen, so I'm just going to go off, free-flow asking you questions because my dog-

Andrew Millison (00:41:04):

Yeah, no problem.

Nate Hagens (00:41:05):

... is attacking me. Let me ask you this, Andrew. I don't know how much you know about my work, but I generally forecast what I refer to as a great simplification, where the energy subsidy that has supported our lifestyles and the financial claims above it are going to decomplexify just by physics in the coming decade. And we're going to have a more local and regional economy with less energy and throughput. And based on what you're saying, India relative to the United States is a poor country, material speaking, but they may be way ahead of us and we can learn way more from their practices, then they can learn for us on what's ahead in coming decades. What are your thoughts on that?

Andrew Millison (00:41:58):

Yeah, I would say, again, it's hard to compare because there's so many people there that they actually are, they're people-rich, as far as labor goes. Most of these really large-scale watershed restoration projects and everything I'm looking at are done by hand. You see things that are done by hand there that are just not done by hand here. And we don't have the demographics in this population to be able to do what they've done people-wise on the low-energy system.

(00:42:35):

But the advanced situation there in their capacity for community effort, their capacity for community-wide cooperation, I feel like that's the thing that can really teach the world because you look, you're like, "Wow, yeah, you had 3000 people show up to dig these structures." You have to have a pretty harmonious social system to be able to pull off the things that I'm looking at. So, that's another thing. I guess I get pessimistic about the United States because I come back here, and I'm not saying India's not socially fractured. I'm not even going to get into it.

(00:43:26):

Anybody that follows knows about the deep divides and riffs in Indian society, but it's not that far back that... Mahatma Gandhi was walking the earth and did the Salt March, and they had the charkha and everybody started spinning their own thread. It's not that far back that they had really massive, massive communal cooperation to put off the British colonization. They're only a couple generations back from a nationwide communal effort. So, they have that memory.

Nate Hagens (00:44:17):

There's a cultural memory of that. Yes?

Andrew Millison (00:44:19):

Cultural memory, exactly. Where in the US-

Nate Hagens (00:44:25):

We don't have a cultural memory.

Andrew Millison (00:44:26):

When we look back, you start talking about the Civil War. Right now, people are, when you look at the political discourse, there's a lot of discourse about... a lot of people are upset that the Civil War turned out the way it did. And so, a lot of the fracturing in our society, like we have that, that's pretty recent in our cultural memory as well that we were actually literally at war with each other. So, yeah, it's tricky.

Nate Hagens (00:44:53):

Let me ask you a really hard question. Jason Bradford is a mutual friend. He and I teased around this. Vandana Shiva is a mutual friend. She and I talked about this. My core thesis is that energy surplus has enabled this moonshot of consumption and population in the world the last couple of 100 years because there's a 10 to 14 to one energy input for the whole growing and processing and packaging and delivering and storing our food. And it used to be, back in the day, our energy systems were a foods, a calorie source and not a sink. So, as fossil fuels decline, a lot of people think that the natural gas, fertilizer and pesticides and herbicides and the energy for tractors and all that is going to mean less food for the world.

(00:45:56):

But Jason and Vandana have suggested that, yes, while that may be true if we substitute human labor, which you just mentioned there's a lot of in India, for some of these fossil inputs, and we instead look at resiliency instead of efficiency, and we maximize the nutrition per acre instead of the dollar profits per acre, that the sustainable human population may be a lot higher than people think with a big asterisk human population doesn't just eat food. We also do other things like watch TV and fly and whatever.

(00:46:34):

But what are your thoughts on that from a water and soil and permaculture perspective of substituting fossil mechanized fertilizer agriculture for permaculture practices with more human labor? What are your thoughts on all that?

Andrew Millison (00:46:53):

Yeah, well, first off, I'd like to say I don't actually know Vandana Shiva. I've met her a couple of times, but I wouldn't necessarily, she's like a mutual friend. I think if you told her, if you mentioned my name to her, I don't think she'd know who I was.

Nate Hagens (00:47:05):

Okay, fair enough.

Andrew Millison (00:47:06):

But I know of her. I'm actually going to be interviewing her.

Nate Hagens (00:47:10):

Great.

Andrew Millison (00:47:10):

But that's another story. So, maybe she will become a friend, hopefully.

Nate Hagens (00:47:15):

She's a global treasure, I think.

Andrew Millison (00:47:18):

Yeah, I have a lot of respect for her, and I've watched a lot of her stuff and heard her speak a couple of times. I saw firsthand the proof that well-done organic agriculture can be more productive than chemical agriculture. And I saw this in India because right now, the Paani Foundation who I did a couple of videos before they had the Water Cup founded by Bollywood star, Aamir Khan. He's a very, very famous Bollywood star. And the Paani Foundation had a competition where about 8000 villages worked on their water problems through watershed restoration.

(00:48:07):

And at least 1000 of those villages fixed their water problems, permanently fixed the hydrology of their watershed. So, now they have abundant water. So then, the Paani Foundation, they had the next iteration of this competition, which is, they called it the Farmer's Cup. And the Farmer's Cup, which I was just there for the last four days of the competition. I visited four villages that were participating farmers' groups in those villages participating in the Farmer's Cup.

(00:48:40):

And they had the opportunity to talk over Zoom, and it happened a lot during the pandemic to educate themselves and talk directly to some of the top experts from universities, natural farming experts in India and in the world, one-on-one, group-to-group educating these villagers. And so, many of these groups, they had... I don't know how many groups they had competing. They had... I need to find out, many 100s and maybe 1000s of these groups competing. And they were using what we would call best practices of organic agriculture.

(00:49:20):

There, they call them SOPs or standard operating procedures or practices. And so, they used these SOPs to the letter from what these experts in organic agriculture, university people were telling them. And widely these farmers groups, widely across these farmers' groups who moved from chemical agriculture to organic-based agriculture, biopesticides, the neem tree, all these different plants that they have are pesticides, cow dung, fertilizer, fertigation, using good soil conservation practices, cover cropping practices, appropriate irrigation. How much water do you apply?

(00:50:08):

When do you put on irrigation? When do you do a bug treatment? When do you thin the plants? When do you thin the fruits? And across the board, they slayed chemical agriculture in their productivity levels. And I did not expect this subplot of investigating these farmers' groups. The subplot was like, oh

my God, well done, organic agriculture beats out chemical agriculture manifold in these cases, and they don't have chemical residues.

(00:50:43):

They have higher prices for their goods. The people are healthy, the water's healthier, the soil's healthy, all this stuff. So, it was very-

Nate Hagens (00:50:50):

That's what Vandana said too.

Andrew Millison (00:50:52):

Yeah, it was very convincing. And I'm going to be sharing that in my video documentation, some of these stories.

Nate Hagens (00:51:02):

A lot more human labor required, like the hours of human labor per X amount of agriculture would be 2x, 5x, I mean a lot more than we use in the United States, yes?

Andrew Millison (00:51:17):

Yeah. But all of these groups actually ended up having decreased labor costs because they were extremely efficient. They were heading off problems before they arose, and they also formed cooperatives between farmers, and that was another one of the purpose. So, every one of them had, well, no, not just farmers' cooperatives. Even when I went with the Isha Foundation, which is Sadguru's foundation. I went all over and looked at their agroforestry project in the Cauvery River basin, the Cauvery Calling project, where they've produced 84 million trees that have been planted in Tamil Nadu and Karnataka, the Southern Indian states.

(00:52:04):

And even single farmers there who were using organic methods and interplanting agroforestry trees saw a reduction in labor when they stopped using chemicals and started using integrated organic practices. I actually think that that runs contrary to what we are told in Western agriculture

Nate Hagens (00:52:33):

For sure. Of the things you learned in India and what you were just mentioning with this competition, what practices... two-part question, what practices that you discovered and observed might be transferrable right now to places in the United States and in the intermediate term, what things could make our agriculture more sustainable, more resilient, healthier? And by the way, the thing you didn't mention that was implied is it probably improves social capital a lot because people are working together and they're talking to each other and getting their hands in the soil instead of on their iPhones, et cetera.

Andrew Millison (00:53:19):

Yeah, that was huge. And you'll see a lot of that in the videos. The social capital that has been built is very evident in the celebratory nature of the whole thing. So, one thing that was very ubiquitous, I'm going to tell you general themes because there's lots of specifics, but general themes, biofertilizers from cow dung and cow urine was exceptionally potent fertilizer. We have a big problem with factory farms polluting like nitrate pollution from excess cattle manure and feedlots and all this stuff. We could really be connecting the dots between animal manures and the fertility needs of the farms.

Nate Hagens (00:54:20):

So, the answer there would be decentralized cow ownership.

Andrew Millison (00:54:24):

Well, then you wouldn't be shipping stuff everywhere. So, partly there is, there's cows people, there's small scale animal husbandry that is mixed in all over the rural landscape. So, nobody is far from a manure source, basically. So, that's one advantage there.

Nate Hagens (00:54:46):

What's fed to the animals is probably better for the manure than all those giant factory farms.

Andrew Millison (00:54:53):

Yeah. And people are doing, basically, they're growing crops, funny, they grow corn there, they grow corn for animal feed. You barely see corn in a dish thing. But they're growing animal feed, and then they have animals foraging. Nobody has a weed whacker. There's no mowing, there's no weed whacking. Animals are managing the landscape in that sense. The other thing was just incorporation of trees and perennial plants on property boundaries on margins like hedgerows. So, boundary plantings of trees and other perennial plants has a great effect on retention of soil moisture, from blocking the wind, partial shade, all the organic matter, material that comes off of a tree incorporates into the soil, the changes in soil underneath trees for water retention.

(00:55:59):

Then, of course, the yields that you get from hedgerow planting. I really saw that when you have a one-dimensional annual agriculture or crop agriculture landscape, there's so many advantages to adding a three-dimensional element to it, tree-based agriculture, at least just on the margins. There's so many residual positive effects that people seem to have from that. So, those are two just real basic ones that are pretty easy wins.

Nate Hagens (00:56:33):

Here's my view, I think people like you are going to be rock stars, movie stars in the coming decade because these are the skills, this is the knowledge that our country is going to need. You're a scout leader, scout team, figuring this stuff out on your own. This is your passion and this is your vocation, and you're a teacher at Oregon State. What is it going to take for more people in our country, leaders, politicians, civic engagement, to wake up and do some of the things that you've been talking about?

Are we going to have to hit rock bottom and, oh my God, there's a crisis? Or could there be a groundswell of movement in this direction? What do you think?

Andrew Millison (00:57:19):

Well, a wonderful thing is happening. It's an unavoidable, unescapable thing, and it's the passage of time, seeing the baby boomers retiring, opening up positions to the upcoming generations. I'm a big follower of Peter Zeihan's demographic models. I don't know if you've seen his work. The End of the World is Just the Beginning. He just talks about this demographic shift that's happening. And I'm witnessing this because I love millennials. I love Gen Z people because I'm seeing these young people coming up and finding themselves into influential positions. This is really starting to happen now. And they're going, "We don't need to do that anymore."

(00:58:16):

Okay, let's take a rethink at this here. I'm very optimistic, I guess I work with young people at the university, but now that I'm almost 50 years old, and a lot of people that I'm working with these days are in their upper 20s, low 30s, and they have a different mindset. And I'm real optimistic that we're going to see that the generational shift that is going on, that the baby boomer retirement peak began in the year 2022, according to Peter Zeihan, that when this wave comes that we're going to see a lot of transformation of institutions because the old guard is just leaving.

Nate Hagens (00:59:03):

I actually agree with that, and until recently, I was also a college teacher, and what you just said resonates with me. But Oregon State is a unique agricultural learning hub. If you're a young person and you read the tea leaves about it, the biophysical phase shift, and you want to go to college and learn something that helps your future, there really aren't a lot of universities that are really diving into the level of your work.

(00:59:33):

Is it possible that we will have more holistic undergrad or, forget what you call it, 17 to 21-year-old education of humans for a future that they will face? Is that possible to scale in universities where universities teach permaculture and have a mandatory six months on the university farm or something like that? What are your thoughts on that?

Andrew Millison (00:59:59):

That's certainly growing in different places, and OSU has some cool stuff going on. The Organic Growers Club run by this guy, James Cassidy, really great programs and that thing. But I think that there's a different trend going on. I call it the University of YouTube, and I think that people are out there educating, this is why I'm putting it out there, because people are out there educating themselves independently.

Nate Hagens (01:00:34):

You have millions of views on some of your videos.

Andrew Millison (01:00:37):

Yeah, I have almost 25 million views on my channel. Some of this stuff has gotten pretty far out there, and it comes back to me in very interesting places and ways that I hear about some of the ripple effects of putting this information out there. I'm feeling optimistic, and that just feeds me to do more of it. Like this India series and I'm putting together now, I'm like, "I want this to just rock, everything else I've ever done be a whole nother level. Let's keep on taking this to the next level."

(01:01:14):

But I think that education, just like social media and YouTube is surpassing mainstream media, surpassing Hollywood figures. I think that the free education that people can get there is just lapping the pace at which universities move at. Universities have to catch up in a sense. And it's funny actually coming from me because I do work at a university and I am also actively working to transform the university curriculum as well.

Nate Hagens (01:01:48):

What do you teach at Oregon State?

Andrew Millison (01:01:50):

I teach permaculture. So, I teach in the Horticulture Department. I was not hired as a permaculture teacher. Student activism is what got me into the position that I'm at. So, if the student said, "We want to have a permaculture class at Oregon State University," and one student, in particular, got signatures and she said, "And this guy right here, Andrew Millison, he's going to be the teacher." And I had to make my own way and support my position by creating a whole online program. Go ahead.

Nate Hagens (01:02:30):

How long have you been doing that? How many years have you been teaching permanent culture at OSU?

Andrew Millison (01:02:34):

Since 2009.

Nate Hagens (01:02:37):

So, 14 years. Do you have former students that 10 years after they graduated are in touch with you and giving you feedback or checking in, and are they still using the skills that they learned from your class?

Andrew Millison (01:02:50):

Oh yeah, absolutely. There's some people that went the permaculture route and they're like, "I'm doing permaculture." They're permaculture teachers, they have landscape companies. A lot of my students end up doing that thing. But I also have students who are like, "Oh, hey, yeah, I work for the NRCS now. Oh yeah, I work for the USDA." Actually, it wasn't one of my students, but someone just got in touch with me. "Oh, I'm going to do the keynote presentation at the Washington State Municipal Stormwater

Conference." So, permaculture people, oh yeah, permaculture person is organizing the Washington State Municipal Stormwater Conference.

(01:03:43):

Yeah, definitely, they're all over there.

Nate Hagens (01:03:47):

You should feel some pride in that, I think.

Andrew Millison (01:03:53):

Yeah, I have moments where I feel really satisfied about what I've done, but for the most part, I'm more driven about what I'm going to do because nothing's really enough given the-

Nate Hagens (01:04:06):

I feel the same way.

Andrew Millison (01:04:07):

... the challenges that we face.

Nate Hagens (01:04:09):

I feel the same way. What are you going to do, Andrew?

Andrew Millison (01:04:15):

People asked me that recently. What I'm doing right now is what I was going to do five years ago. So, I think really, I'm going to keep on keeping on at this point. I have a lot of plans, to go to other places in the world, more places in the world, besides the places I've already gone, document these systems, document people that are doing revolutionary, large-scale landscape transformation, cultural transformation that are, like healing the planet, basically, going to these places and showing in a fun and interesting, but also technical fashion what they're doing here so they can be replicated.

(01:05:03):

So, I feel like right now, I'm like a amplifier. So, my job is just to identify and amplify the good work that people are doing and then put it forth in a fashion that it can be replicated or learned from at least.

Nate Hagens (01:05:24):

You are a permaculture and water catalyst and diplomat.

Andrew Millison (01:05:30):

Yeah, that's what I'm going for.

Nate Hagens (01:05:33):

For people listening to this episode who may not have thought about this or know much about permaculture, and they're like, "Holy crap, this makes a lot of sense. I actually think this makes sense for my community to get conversations and maybe a group of people thinking and doing this, learning together, starting this in their watershed." How would you advise them to get started?

Andrew Millison (01:06:01):

Well, they always say, "Where do you start doing permaculture?" Right outside your own back door. Permaculture is a, it's a grassroots activation. So, the point is, it's like, you can start permaculture on your apartment balcony. You can start growing food. You can start recycling your organic food waste under your sink in a worm bin, and creating organic, perfect, beautiful worm castings, organic fertilizer for your tomato houseplants. There's nothing too small. That's the thing about permaculture is everybody can be activated to doing it in their own lives.

(01:06:52):

And then, reaching out and connecting with other people that have common interests, creating a study group, watching videos together, going and doing a permablitz. We're like, "Okay, we got five people that are interested. Let's all go work on my place and we'll transform this whole side yard, and then we go work on your place." It's really conducive to community building. It's a ground-up organization, a ground-up movement. Nobody should be priced out. And even if you're a renter, I mean, there's so much land available. There's so many people out there that would like someone else to grow a garden on their place.

(01:07:45):

I was just talking to some young people that came by my house the other day who recently moved to town, and they were talking like, "Oh yeah. And we put out a thing on the Nextdoor website about, oh, we're looking for some people that would like us to garden their space." And of course, this is Corvallis, so it's garden heaven. But they were like, "We were absolutely overwhelmed with responses." In the same way that things are being passed from the boomers down the generational shift, it's like there's a lot of people out there that have property that would like someone else to take care of the property.

Nate Hagens (01:08:21):

Would it be awesome if there was some a networked crowdsourced campaign where financially, wealthy people in small towns and cities across the United States could donate some land within the village or city limits to young people to turn into a permaculture hub for the city, and then the social capital and the food and nutrition and the skills and everything could just spread out from that? Is something like that possible? Is that desirable?

Andrew Millison (01:08:58):

I think stuff like that's already happening. I'd have to go back in my notes and think of different projects. But I think stuff like that is fully already happening.

Nate Hagens (01:09:11):

Awesome. I know you are a busy person. If you don't mind, I'm going to ask you some personal questions near the end. I'm respectful of your time. I have so many questions for you. I garden. Actually, I grow too many potatoes. My girlfriend grows around 2000 bulbs of garlic, and we grow hazelnuts. I have 200 hazelnut trees. To be honest, the podcast and my job are making me less resilient in my gardening. But for the last 20 years, I've had lots of things that I've planted.

(01:09:50):

And for me, it's not about being sustainable as much as it is being with the land and the soil. And it calms me down and it gets me away from the technology, and I'm just under the sun and getting my hands dirty and getting physical exercise, and it makes me healthier to do that. I'm blessed to have a little bit of land here that we do that on.

(01:10:17):

So, Andrew, given your lifetime of work on sustainability-related issues, and given what you've mentioned as the challenges that we face as a nation, as a world, do you have any personal advice to the listeners of this program at this time of global ecological crisis in addition to learning permaculture?

Andrew Millison (01:10:40):

Yeah. I would say find yourself, like who are you? What is your greatest potential? What's going to make you happy, and how can you contribute? And can you simultaneously contribute to the world and fulfill your heart's desire? I think that's the goal. Like for you, Nate, it's like, well, you could be just a farmer and you'd be very happy there, but then you might not be exercising your full gift to change the world. But for some people, just making a beautiful farm and feeding their community, feeding their family, that's their highest potential. Some people ask me sometimes, they're like, "How come you don't have a farm? Shouldn't you have a farm?"

(01:11:43):

I'm like, "If I had a farm, then that's all I would do." But I have other God's gifts thing. What is your thing? I have certain ideas and visions of things I want to do, and certain skills that can do that. Don't do what you think you should do. Do what really fulfills your heart and uses your abilities.

Nate Hagens (01:12:15):

I love that. I tell my students, the time is now not to minimize your impact, to maximize your impact, which is very aligned with what you just said. So, do you change that advice that you just said with your students? I imagine teaching 18, 19, 20-year-olds who are aware of climate change and the economic difficulties, they are probably more anxious today than they were 10 years ago when you started teaching this. How do you change your advice to your students? And at the end of the semester when you're sending them away, what are your parting words to them?

Andrew Millison (01:12:54):

Yeah. There's a thing that people keep saying. "The jobs that your kids are going to have don't even exist right now. You can't even imagine." So, I'm like, "Don't get too fixated on what you're going to do.

Fixate on developing yourself, developing your potential, developing, like knowing what's best for you and how you can best contribute. And the job stuff will unfold." That'll come from there, hopefully. And the other thing I say is work backwards from how do you actually want to spend your day. What's your ideal day? And work backwards from there.

(01:13:41):

Because some people are like, "I want to be a landscape architect," and they think of landscapes and they think of being outside and they think of planting trees, and then they actually are sitting in front of the computer doing AutoCAD. Right? That's happened to me. So, really think about how you want to spend your day.

(01:14:02):

I want to be outside all the time. Okay, then don't become an engineer. And you may or may not sacrifice income or whatever, but none of that matters. I don't want to be too cliché, but it's like follow your heart. Your heart knows what you should do.

Nate Hagens (01:14:27):

Yeah. What do you care most about in the world, Andrew?

Andrew Millison (01:14:35):

Yeah. I care most about goodness and about amplifying goodness, really. I think that's what it comes down to. We very well might not fix the world's problems. This could be just an exercise right now, in our own experience that we're having. Whenever I have some decision to make, a lot of times, I'll drift off to the moment of my own death, and hopefully, I'm lying there and all my family's surrounding and the angels come down. When you're reflecting on your life, you're looking back.

(01:15:29):

And regardless of what happens with the planet, it's like when you're reflecting on your own life, at the end of your life when you had this flash and you see everything that happened before, everything that happened since you were a baby all flat. You're like, "Did you do the best you could? Did you spread goodness? Were you kind and loving to the people around you? Did you help the earth? Did you help the species? Were you a beneficial aspect of the world?" And the answer should be yes.

(01:16:06):

So, work backwards from there and make sure that at the end of your life when you cannot look back, make sure that you've got your boxes checked and that you're good with the earth and with the universe and with your family.

Nate Hagens (01:16:22):

That's one of the most beautiful answers I've gotten to that question. Thank you for that. I also value goodness, and I hope that you and your work can pass the baton of that to lots of young people. In addition to a wand, a baton. If you had a magic wand and there was no personal recourse to your decision, what is one thing that you would do to improve human and planetary futures?

Andrew Millison (01:16:56):

Yeah. I think that if I could induce one thing, it would be that every human gets to have some God, oneness with the universe experience. Hopefully, at some point in everybody's lives, whether it's caused by the death of a loved one or the birth of a baby or something that they have some moment where they realize where they shed their dramas and their worries, and they just recognize their connection, they're just part of this fabric. It's like if I could blink an eye and wave my wand, it would be everybody simultaneously sheds the illusion, whatever illusions that they're in, and just sees their life and themselves and creation for what it is.

Nate Hagens (01:18:03):

So, the shift from me to us, me to we.

Andrew Millison (01:18:07):

Yeah. And not even identifying with their own body, but just having a moment, recognizing that we're just made up of vibrating particles.

Nate Hagens (01:18:24):

When you first started that, you paused and you said, "I would wish every human had," and I thought you were going to finish this sentence with a hectare of land to do permaculture on.

Andrew Millison (01:18:38):

I don't know that that's everybody's thing. I'm less and less judgmental about what someone's truth should be because I've met so many people doing so many extraordinary things that are so impassioned by what they're doing that I'm like, "Oh, should everybody be... well, civilization was built on surplus. It's like, you have some people that are super impassioned about farming. They can grow more food than they need.

Nate Hagens (01:19:06):

Than they can eat.

Andrew Millison (01:19:09):

Than they can eat. So, there's a lot of room for people to do many other things. Sometimes I have fantasies that, somehow when AI or whatever becomes sentient, it's going to be some evolved entity that we'll see beyond what we're able to see with our human dramas and everything like that. I'm fantasizing, I'm like, "What can cause the shift in human consciousness, what can cause the moment that we all see ourselves in the world in a moment of truth and clarity?"

Nate Hagens (01:19:55):

Widespread ayahuasca use, maybe hitting rock bottom and having a gut check as a culture, maybe YouTube channels like your own, where people learn and experience and have awakenings. I can

envision many different possibilities, but I'm with you there. This has been a fantastic overview of you and your work and your knowledge. I've recently concluded my podcast by asking my guests who are mostly first-time guests, that this was a general overview of permaculture and water and your work in India.

(01:20:35):

If you were to come back in six months and take a deep dive on one thing, what is most passionate to you that could just take a deep dive down one particular rabbit hole of a topic special to you? Do you have any speculation on that?

Andrew Millison (01:20:52):

Yeah. Well, right now, being that I just got back from India two weeks ago, there's just so much that I could say about the particular things going on there. I've spoken very generally, but there's so many stories that hold all of these deeper lessons in them of like what different groups of people are doing and the level of impact that they're actually seeing and the scale of large-scale transformation. So, I guess it would be a little more storytelling and getting a little more specific to open the window a little further into some of these possibilities that I've witnessed.

Nate Hagens (01:21:48):

You're a great human being and I'd love to have you back, and maybe we'll do just that. When will those videos be out on India, and how do people find those videos and your channel?

Andrew Millison (01:22:01):

Yeah. Well, you could certainly watch the first season by going to Andrew Millison YouTube, Andrew Millison. You can go to my website, andrewmillison.com. It's A-N-D-R-E-W-M-I-L-L-I-S-O-N. And then, also, if you just type in Oregon State University permaculture, you could certainly get, well, permaculturedesign.oregonstate.edu is how you get to my OSU stuff. And on my YouTube channel, I have a playlist called India's Water Revolution. So, that's the last season, and that would be a good starter just to see what I did three years ago.

(01:22:50):

We're going to put out the trailer, actually, we're making a little trailer. We'll probably have the trailer out probably by the end of the month or thereabouts. So, right now, it's March 13th, so probably by April 1st or so we'll have the trailer out. And then, I don't know, there's a lot of moving parts to really putting these together, a lot of map animations and graphics and things that are not that easy to come by.

(01:23:18):

So, definitely, over the next six months, you're going to see these episodes sequentially popping up for sure. But you could busy yourself in watching my other videos while you're waiting.

Nate Hagens (01:23:31):

Awesome. Thank you so much for your work and foresight and evangelizing the importance of maybe a different way of doing agriculture in the United States and globally, and let's stay in touch.

Andrew Millison (01:23:45):

Awesome. It was great talking to you, Nate. I really appreciate you having me on, and I wish you the best of luck and look forward to talking again soon.

Nate Hagens (01:23:52):

Thanks, Andrew.

(01:23:54):

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