

# The Great Simplification

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[00:00:00] **Rod Schoonover:** The doctrine of the 20th century was sort of like the game of risk, where you have the map that doesn't change and all the pieces move on top of it. The question is, does it still match the threat landscape of the 21st century? That some people, including myself, call these an era of actor, less threats.

[00:00:18] Threats without someone to point a drone at. Things like climate change, pandemics, ecosystem destabilization, food price shocks, you know, if a foreign invader. We're burning houses or intentionally sinking whole apartment buildings under mud, we'd have no problem seeing it as a national security issue, but because we don't have those actors, we have difficulty seeing it.

[00:00:43] And I think that's evidence of a misalignment between doctrine and threat.

[00:00:53] **Nate Hagens:** Today I am joined by Rod Schoonover, a leading expert in the interrelationship between ecological and national security to explore how our understanding of security risks is being reshaped in the 21st century, particularly under the strain of increasingly breached. Planetary boundaries. Rod Schoonover is the founder and CEO of the Ecological Futures Group, which examines the national security and societal dimensions of global ecological change.

[00:01:23] Rod previously served as Director of Environment and natural resources at the National Intelligence Council, as well as senior analyst in the state department's Bureau of Intelligence and research. One of the key things that drew me to Rod and his work was his perspective on one of the first US

# The Great Simplification

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investigations into climate change as a national security threat of which the resulting report remains classified to this day.

[00:01:49] To me, the continued secrecy of this otherwise open source research document speaks magnitudes about the continued unwillingness of the government to seriously act on ecological security issues, and this is true of both Democratic and Republican administrator. At the core of this rather serious conversation is a discussion on how we perceive and approach issues of security in the 21st century through an outdated lens of country versus country, rather than recognizing the increasing ecological risk that affect humanity at large as the major security threats that they are, in my opinion, this speaks to the heart of the species level conversation.

[00:02:33] At which I believe we have arrived. Additionally, if you are enjoying this podcast, I invite you to. To our substack newsletter where you can read more of the system science underpinning the human predicament, and where my team and I post special announcements related to The Great Simplification and our content, you can find the link to the subscribe in the show description.

[00:02:56] With that, please welcome Rod Schoonover. Rod Schoonover. Great to see you. Welcome to the show. Thank you. I am honored to be here. So you have a unique background that melds together fields of complex systems, physics and security, including serving in the US intelligence community for a decade as the direct.

[00:03:19] Of environment and natural resources at the National Intelligence Council and as a senior analyst at the Bureau of Intelligence and Research at the US Department of State. So was there a moment when you realized how intertwined earth systems and national security are, and I guess more broadly, what called you to dedicate your career to this type of work?

# The Great Simplification

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[00:03:43] Rod Schoonover: It's a good question, and thanks for the question and the, opportunity to talk about a lot of these issues that are, really near and dear to my heart. I,

[00:03:53] Nate Hagens: don't know anyone else that's working at this intersection, by the way.

[00:03:56] Rod Schoonover: It's less of a moment and more of an elu, an evolution. And then I would say there's a pivot right around.

[00:04:03] 2011. And so, as you mentioned, my background is in complex systems physics. which, you know, if you are getting outside of your computer models, you know, your toy models and looking at real world applications, your naturally, naturally drawn to climate and ecological systems. And so I was a college professor.

[00:04:31] I. that was my career 1.0. and it turned out that my scientific training, you know, the ability to, talk about, complex things, I. It turned out to be valuable, when looking at a number of emerging security issues. So I landed in the intelligence community a place I never thought I would ever go.

[00:05:00] That was not my intent. And so this is part of the evolution. I would say. The pivot comes right around 2011 when I, come across. Which would've been two years old, maybe the first report on the Planetary Boundaries framework. And that's when I, you know, I went, oh wow. I have really personally been under scoping the risk.

[00:05:30] to people and nations and ecologies and

[00:05:33] Nate Hagens: ecosystems and other species. Yeah, exactly.

# The Great Simplification

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[00:05:36] **Rod Schoonover**: Yeah. Right. and when you go, when you effectively change your career to work on climate change. 'cause I never went back to academia. And then you see the, you know, famous to some people, unknown to others.

[00:05:52] diagram of planetary boundaries. You see these other slices. You know, the one on biosphere integrity and novel entities, and at the same time, I'm inside of a national security apparatus That is, I would say almost 100% ignorant.

[00:06:17] **Nate Hagens**: Of that work. So in 2019, you decided, not an easy decision to resign from your position under the first Trump administration.

[00:06:28] And more recently you have pushed back against the continued classification of the 2008 intelligence community report that you mentioned on the security implications of climate change. So, so what are your current thoughts on the climate transparency of the. US government writ large. And why is this 2008 report such a critical piece of communication about climate and security?

[00:06:56] I think it's a remarkable

[00:06:58] **Rod Schoonover**: report for 2008. It is the, it's the first time that the US security community of which the intelligence community is part, Takes an issue, takes this issue and says, this is what we think about it. Right? It's the first time, it outlines, it's, you know, there's geopolitical tensions, national security threats.

[00:07:28] you know, I don't want to overhype it because. If it were leaked or declassified tomorrow, I don't think a lot of people would be surprised by what it says. 'cause there's practically nothing classified in it.

[00:07:45] **Nate Hagens**: This was commissioned and researched and done in a Republican administration, right. George Bush was president then.

# The Great Simplification

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[00:07:51] **Rod Schoonover**: Yes. Yes. Yeah. And it was, Welcomed in a bipartisan way in 2008. I'll just note this is the, this was a year before I joined the, administration. And so one of the, I think, important things is a process question that turns out to be important is that. At the time there were 16 intelligence agencies, maybe 17, if you want to count the office of the director of National Intelligence and so.

[00:08:26] The process of this being the flagship report that the intelligence community gives, it has to be signed off by every intelligence agency. And they all signed off on it. They all signed off on it, C-I-A-N-S-A, every single, entity. And so this is does not belong to one

[00:08:47] **Nate Hagens**: body. Was there, prescriptions and, remedies, or was it just a state of the scenarios and what we see scientifically is going to happen to climate in the United States and the world?

[00:09:00] **Rod Schoonover**: Yeah, I think that's an important distinction because I think you know, it goes to what is the value add of the intelligence community. It used to be secrets and clandestine information. But that kind of information is we're in a different information landscape. And increasingly the value proposition of the intelligence community is the fact that it is not policy prescriptive.

[00:09:32] It does not say, here's the problem, and here is also how we should fix it. Right? So, you know, a policymaker, whether it's a Secretary of State. You know, president can turn to their intelligence community and say, just gimme the facts.

[00:09:49] **Nate Hagens**: Time and emissions make our situation worse. And the amount of warming that's built into the pipeline is not only worse, but substantially worse than it was in 2008.

# The Great Simplification

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[00:10:00] And yet, 17 years later, we are removing, climate change from textbooks and funding for climate science and NASA and NOAA and other areas are being, you know, handicapped with funding. So. We're going wildly in the opposite direction. Yes. I would say that we are

[00:10:21] **Rod Schoonover**: substantially increasing our risk from climate change because we are, at the same time, not reducing the hazard part of risk.

[00:10:36] We're also, decreasing our ability to, to watch it. To monitor

[00:10:45] **Nate Hagens**: it. So when you say we're increasing our risk, you don't necessarily, or I don't think, I think specifically you don't mean our ecological risk or our economic risk. You mean our national security risk?

[00:10:57] **Rod Schoonover**: I do. I do mean our. our national security risk.

[00:11:02] I would say our global security risk and our risks to human security as well. All of them. Do you wanna just give an overview of that? I think just talking about how risk is, you know, multifactorial, it's got a hazard piece, it's got an exposure piece, the vulnerability piece, and the response piece. We are effectively underestimating every single one of those.

[00:11:27] For example, the, the resistance to believe in climate change for whatever reasons, reduces our response. I.

[00:11:36] **Nate Hagens**: When I travel, internationally, which I did twice last year actually, it seems like the recognition of the risks of climate change and the broader ecological planetary boundaries are much more widely known abroad.

[00:11:55] obviously in Europe, but also in Asia, and Australia. Why is the US different there? Is it because of the misinformation disinformation? Do you have any speculation on that?

# The Great Simplification

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[00:12:06] **Rod Schoonover:** I do think there is some degree of narrative capture, from, I would say industrialized misinformation. Yeah. And disinformation.

[00:12:17] But I also think our standard of living, buffers some of the, effects, you know, when people are affected by climate linked disasters, we think of them as unlucky rather than the victims of a failure. Yeah. Yeah.

[00:12:38] **Nate Hagens:** Casualties of market failures.

[00:12:40] **Rod Schoonover:** Well, and I would say security failure, right? I.

[00:12:47] the Los Angeles wildfires, and the, the mudslides in, Western North Carolina where my in-laws live. you know, we call those natural disasters, but they're also maybe better thought of as security failures because these are knowable.

[00:13:10] **Nate Hagens:** So this isn't so much, solving climate change and making the, coming decades and centuries and millennia less warm than the default.

[00:13:21] there, there's a little of that, but most of it is how to make our, from a national security standpoint, our society more resilient, more rugged, more prepared for what's likely in the pipeline. Yes,

[00:13:32] **Rod Schoonover:** yes. I mean, I think that's, There's a responsibility to act on information, and, you know that you've captured it well.

[00:13:46] I never use the word solve climate change. I never use that terminology. It's navigate. I. Right. it's not solvable. It's not solvable

[00:13:55] **Nate Hagens:** that, that gets to my work on the economic Superorganism that we're part of a system that has a metabolism. So, let's go out

# The Great Simplification

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to national security itself. because you worked in that field for a long time, how has the definition and meaning.

[00:14:12] Of national security changed between the 20th century and the 21st century and what are the, the dominant factors now shaping it?

[00:14:22] **Rod Schoonover:** Yeah, it's a good question. It's an important question. The doctrine of the 20th century was sort of like the game of risk. I. Where you have the map that doesn't change and all the pieces move on top of it.

[00:14:34] But we don't have that map anymore. We don't have that planet anymore. Right? Our planet is fundamentally different. And so, so this doctrine and architecture that was produced in the 20th century, the question is it still, does it still match the threat landscape? Of the 21st century that, you know, some people, including myself, call these, an era of actor threats, right?

[00:15:02] Threats without. Someone to point a drone at, or an actor that you can, listen to, right? These are things like climate change, pandemics, ecosystem destabilization, food price shocks. So it just short circuits our current architecture, which is designed to point things at other entities, and are ill suited for these things.

[00:15:34] that, you know, that are, these threats that are diffuse, systemic and deadly. Right? And so what's really kind of ghoulish, is if a, you know, if a foreign invader. We're doing the things right, burning houses in the, Western United States or intentionally sinking whole apartment buildings under mud, but it was a foreign actor.

[00:16:04] We'd have no problem seeing it as a national security issue, but because it's not. we don't have those actors, even though the outcome is the



# The Great Simplification

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same number of, you know, people, died. Same, economic disruption. We have difficulty seeing it, and I think that's evidence of a misalignment between

[00:16:28] **Nate Hagens:** doctrine and threat.

[00:16:30] So what, in your opinion, how have the, how's the recent administration, been. Doing, adapting to this change in, definition or meaning of national security and how could they be better?

[00:16:46] **Rod Schoonover:** You know, the last administration, had a number of security officials talking about climate change as an existential risk, right?

[00:16:58] Sometimes saying the most important security threat facing the United States. Then when you saw the org charts, the organizational charts essentially no difference. Change is hard, especially in our system of government. but over time we have to recognize, I would say, a substantial failure in, in looking at the threat to people and nations from climate.

[00:17:30] Climate change.

[00:17:31] **Nate Hagens:** So from a national security perspective, there's the adaptation and the mitigation component, on. Isn't this a giant prisoner's dilemma? That there's different nations, that have, different, cost benefit analyses and effectively on these issues? And we're gonna get to planetary boundaries, in a second.

[00:17:57] But can there be national security? Without broader global security and if not, how do we foster global security?

[00:18:05] **Rod Schoonover:** It's hard for me to imagine any meaningful, sustainable national security without the global piece. these threats, transcend borders and we have a massive threats in the 21st century.

# The Great Simplification

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[00:18:24] That we don't, that we didn't before and ignoring them or, you know, the, danger of applying a national response to what is a transnational problem, looms.

[00:18:41] **Nate Hagens:** When we met in person, we talked a lot about this, that climate gets a lot of the press, but the risks are way beyond climate. yeah. So getting to your work on ecological security, can you explain what that term means in a practical sense?

[00:19:00] **Rod Schoonover:** Yeah, so just. Very, short, just practically means incorporating the incre, the integrity of earth systems, from the climate to the biosphere, freshwater soil, oceans, directly into national and global security. Strategies, doctrine, architecture.

[00:19:21] **Nate Hagens:** And, I know you've written some papers on that recently, which we'll put in the show notes, but what are some of the biggest categories of insecurity caused by climate change and ecological degradation?

[00:19:35] **Rod Schoonover:** Yeah, so, you know, it's interesting when you look at the types of what I call security outcomes or insecurity, Earth system stress is not inventing new ways of, or new forms of insecurity, right? It's still food and water insecurity, health insecurity, economic insecurity, political instability, which I think about a lot, conflict.

[00:20:03] but the drivers. Are different. And arguably since they're not just coming from foreign adversaries, but from the system itself, the possibility, the likelihood of intertwined, if you want poly crisis, you know, and ecologically embedded poly crisis, right? The numbers. Of simultaneous outcomes and the interconnectedness of, of stress and outcome, make a security picture possibly unlike humanity has faced before.

# The Great Simplification

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[00:20:42] And so, and you can go, you know, you could look at soil stress, you know, pollinator collapse. You could look at harmful algal blooms, which are almost always conceptualized as, water, quality issues instead of Right. an ecological canary. that's, Almost certainly more destructive than most people think.

[00:21:10] and so there's just a lot of different, ways to get to the same types of insecurity that, you know, we've seen in the past.

[00:21:22] **Nate Hagens:** in the present. Is there some term in your field where all the science points to. Probably mitigation isn't gonna work, and just all of our efforts from a security standpoint have to be on adaptation.

[00:21:39] is there a terminology? Yeah, like, I mean, at some point I would assume that there's a spectrum of we need to make this better than the default by policy or intervention or rebuilding or whatever. At some point, like reading the tea leaves of the science on some of these, planetary boundaries are X, Y, Z is going to unfold for sure in the coming decades.

[00:22:07] And so do we just give up on the mitigation and put all of our efforts into adaptation? Is there a terminology or concept of that phenomenon?

[00:22:16] **Rod Schoonover:** I've referenced a, you know, a responsibility to act, on. On information, which is part of the, you know, the, the code of, national security. there's also, arguably, and I'm not sure this is a direct answer to your question, but you know, we.

[00:22:37] We often hear about the precautionary principle being used in terms of, environmental policy, but I think there's a precautionary principle for security as well, that we know things and I'll just take biosphere, you know, biodiversity loss and biosphere destabilization, right? I think most people know that is.

# The Great Simplification

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[00:23:01] Not going to be good for, society stability. I think we still haven't articulated the pathways by which, it is, harmful right in, in ways that the security world writ large can, can, can uptake it. But we know enough, To prevent more, risk from emerging. Right? We know enough. So that's what I mean by the precautionary principle for security.

[00:23:39] We don't need more studies, we need more action

[00:23:42] **Nate Hagens:** here. Here's a question I have, rod. Yeah. You said there's 16 or maybe 17, intelligence. Agencies In the broader umbrella is part of this like a hot potato phenomenon, that there's no one entity that's actually responsible for this because it's a novel entity.

[00:24:03] the risk that ecological security, which is really novel given the past, of our species, of our country, everything. So is it. No, director or deputy director wants to own this because it's a huge risk to their status and their domain. And so because no one stands up and owns it, then nothing happens.

[00:24:29] is some of that going on? Well, certainly that's always part

[00:24:32] **Rod Schoonover:** of it, but this is one of the reasons why I went back to the National Security Act of 1947 and here we are 80 years later. if. Just a theoretical, just a thought exercise. If we were going to rebuild the national security community like they did in 1947 to match the threats, of today, would it look like this?

[00:25:02] Right. And especially if there was significant. Understanding of the climate and ecological disruption and the effects of these things on nations and people would we, structure the national security community in such a way where these things would be so difficult to uptake.

# The Great Simplification

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[00:25:22] **Nate Hagens:** Does the national security, apparatus and all the 17 agencies, do they have any involvement in things like the Paris Agreement and, you know, the Paris Agreement?

[00:25:33] We've withdrawn from that twice. So I mean, I'm just. Curious what your thoughts are on, on, was the agreement a success? And also do the intelligence agencies have any say or involvement in all that?

[00:25:47] **Rod Schoonover:** So the involvement of the intelligence agencies is purely informational, right? It's a question, you know, if the Secretary of State might say, is this country.

[00:26:00] Legit when they're coming to us and saying this, or are they trying to, you know, do a big rug pull. Right? And so, you know, that part, those questions are geopolitical, in nature. And that's, you know, a large part of the intelligence community works on answering those, geopolitical questions. but just in terms of, you know.

[00:26:26] This agreement. I'll just say I'm a fan of the Paris Agreement. I think it's one of the first. truly 21st century accords. it's a fundamental break from the past. The reasons why it's a fundamental break are almost certainly from broken American politics, but nonetheless, it comes at this global compact in a different way.

[00:26:53] It's not. You? it is, it's not based on legal frameworks, it's based on voluntary. I would say, the biggest problem I have with it, you know, again, you mentioned a part from focusing primarily on mitigation, rather than adaptation, especially early on, It's housed in a system that does not let the Paris Agreement work, right?

# The Great Simplification

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[00:27:23] The UN consensus process holds it back from success. the COP system has been arguably co-opted by you. You look at, the presence of fossil fuel, industries at the COP itself, it's hard to argue that hasn't, Held it back, held back. the, you know, the Paris agreement, the architecture of the Paris Agreement, I think is quite interesting because it has built in, adaptive response, right? Most treaties are not dynamic. This one is, and that's. right. It has this five-year ratchet mechanism. It's in the DNA of the agreement.

[00:28:17] One of the problems is if the withdrawal of the United States substantially weakens this agreement, then the agreement wasn't very robust to begin with. And so, so I think that, Looking, what should something look like in the 21st century? And, you know, unh it from this process, I think, somehow,

[00:28:54] **Nate Hagens:** Would be a right direction. So as someone who advocates for, security sector reform, what changes would you suggest, rod, on how to make our military and intelligence agencies operate better or, appropriately in the face of climate and ecological threats?

[00:29:13] **Rod Schoonover:** Right. So there are little tweaks and then there's the big one, right?

[00:29:17] The little tweaks are, You need to build, systems thinking, strategic warning, strategic foresight, or scientists, they need to be inside the security community, especially, since the threat landscape is changing so quickly, right? From, so when I was at the National Intelligence Council, I was the climate person.

[00:29:49] I was also the water person. I was also the wildlife trafficking person and the fisheries person and oh no, the food, it was good for me and good for my understanding, but this is no way to, yeah. to organize a security community that is right size and aligned.

# The Great Simplification

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[00:30:06] **Nate Hagens:** So how much of that is just a value system of our current as yet to be ecologically mature species and culture?

[00:30:15] **Rod Schoonover:** I think it's strongly connected, but it's also, this inability to see that the system we have in place isn't working. There's only so many tweaks on the knob that you can make, before you see, oh, well maybe the whole thing is a problem and right. we've gone through times in this country where we have.

[00:30:42] Really remade what government looks like. And so nine 11 was seen as such an, you know, an acute change that we restructured much of the government. And I would argue that, especially after. and, you know, four or five years of quote unquote natural disasters and, ecological security outcomes roll through the system.

[00:31:16] Maybe the time will be right, especially after much of the government has been dismantled. Maybe it's time to rethink the

[00:31:25] **Nate Hagens:** whole thing. So paint us a picture in that scenario, of what a security sector that's truly adapted to 21st century ecological risk might look like. In reality,

[00:31:36] **Rod Schoonover:** you would need to break down the bureaucracy in the bureaucratic silos.

[00:31:40] You would have to, you know, I think a lot of people think, well, let's. let's move climate and, ecological disruption into the Department of Defense. I don't think that's right. I don't think that entity is the thing that would, strengthen our security or, you know, and strengthen ecological security.

# The Great Simplification

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[00:32:04] I think you would need, to rethink the executive branch. What does it do? And I'm not saying it's the only value because I think equity and, dignity are two other values. But go through, you know, the departments and maybe rethink departments. maybe there should be a department of ecological security that focuses on ecological stability.

[00:32:37] As, as a thing to pursue. So this is, I think this is what leadership in the 21st century looks like. Who, focuses on the ecological stability piece and who helps the, international, community get there? They think it's going to require more than just a department of ecological security or whatever.

[00:33:06] I think different, parts of government, whether it's, you know, our current Department of Labor, Homeland Security will need a piece of how is this contributing to. Ecological stability. So I don't really think that you can do it in a, in a bureau or a department that is ignored by everyone.

[00:33:31] Right? It. And so how does it come about? It comes about, right? This is one of those places where leadership matters. Where, someone says, you know, what would the founding architects of the United States, be doing? If they met around, met in a beer tavern in 2025, what would they be thinking needed to be created from?

[00:34:00] **Nate Hagens:** From scratch, the founding architects of the United States lived and designed their systems and laws and values on an ecologically un-unfold planet. so they would have to really be educated and informed with modern physical complexity science that you're, that you're is in your purvey and.

[00:34:25] Become educated in systems thinking, right? And become aware, like if they were time travelers and could take a, a one month overview of all the planetary boundaries and everything that's happening and why without having the political influence. that modern day people move up the status hierarchy in, in



# The Great Simplification

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the, halls of power, then maybe they would have something insightful to, to say and suggest.

[00:34:53] Right. what are your thoughts?

[00:34:54] **Rod Schoonover**: Well, I mean, we invented systems thinking for a reason, right? I'm, I often. Marvel at the fact that we have this, great achievement, but then we don't use it very well. and so, you know, in this Hollywood script, I would find, you know, the equivalence of today, right?

[00:35:15] Not time travelers, but the person in, you know, Modesto, California and, you know, wherever who are young and ready to, rethink. Rethink

[00:35:30] **Nate Hagens**: what security means. So let me move to a.

[00:35:38] Every year that passes on average, more and more people will come to understand and it will be undeniable unless there's a giant, cognitive dissonance, which precludes people from adjusting their priors, but it will become undeniable that I. We are warming, it's accelerating, and this has dire consequences for the planet.

[00:36:00] So it's my belief, even though I'm not a fan of it, and I have huge concerns about it, I think geoengineering, is going to be chosen, by governments, around the world. and it is sometimes touted as, A critical component to bringing down earth's temperatures. But there are also many serious, unknowns when doing this type of thing, interacting with the natural processes of the biosphere.

[00:36:29] So that itself is a novel security risk. And so have you thought about that? what sort of new security risk, might. Geoengineering create beyond those already, in the pipeline from climate change?

# The Great Simplification

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[00:36:44] **Rod Schoonover**: Yeah, and I think it's a really good question. I wish a lot more people, I. we're aware of, you know, these kinds of discussions.

[00:36:53] No, I find myself in a strange position because of, you know, I, I think I differ a little bit from a lot of scientists, a lot of earth system scientists, on this. I. Don't think it's a foregone conclusion that we will use it, but if so, we really better understand it. But then, you know, a lot of our system scientists say, well, that's arrogant.

[00:37:19] We can never, why is that arrogant? We can never understand the earth system well enough, to toy with it, even though we've been toying right with it for, you know, 200 years. And so, I. I think, you know, the, security risk, you know, you can just rattle them down. you know, there are the geopolitical types that, you know, who gets to set the temperature.

[00:37:52] what if one country, decides it's going to, partake in engineering and geoengineering? By the way, the, you know, the. US security community has thought about geoengineering quite a bit, but what is always remarkable to me is it was always cast, as something that some other actor in the world would do.

[00:38:17] Some, you know, either, some rogue billionaire, a rogue state. But I think if you asked the world who, what, which country is the most likely to partake in geoengineering, the fingers would be pointing at the United States. And so, I think it's really important to understand the science behind it and then use the science to assess the risk.

[00:38:46] Because I think a lot of risk right now is being assessed from a values. Standpoint that, this, there's too much, uncertainty and maybe that's true.

[00:38:58] **Nate Hagens**: Let me take a different, angle on, security and ecology risks. I mean, it, it almost seems like there's a whack-a-mole dynamic here going

# The Great Simplification

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that we, we see a risk and then we see some responses, but the responses themselves create other risks.

[00:39:17] For instance, how do ecologically sensitive practices like mining for rare earth metals, which are going to be necessary if we, have something related to our current consumption levels using solar and wind and geothermal, et cetera. How does that fit into the story?

[00:39:37] **Rod Schoonover**: Well, it goes back into, right, are we gonna learn the lessons of the 20th century?

[00:39:42] are we just going to pursue rare earth minerals or critical, materials at large? Are we going to pursue them with the mindset of the 20th century? Will, we will end up with those same kinds of, you know, resource nationalism and geopolitical tensions, right? You can see them emerging now. and. Or, do you change the way that you're thinking about it?

[00:40:11] Right. and that's easier said than done. I, but there are a few times in human history where you get a chance to rethink what's how we do things. I think we're in one of those areas if we have the courage. To look at it that way.

[00:40:32] **Nate Hagens**: So what, taking off your, your security hat and putting on your complex physics, complex systems and physicist hat like.

[00:40:45] What issue of all the planetary issues or pick a couple, are you most personally concerned about and why?

[00:40:52] **Rod Schoonover**: I'm very much concerned about, novel entities, in terms of, plastics and microplastics. I think we have conducted this enormous gamble that the per the micro-plastics that permeate everyone listening to this.

# The Great Simplification

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[00:41:14] Podcast. It's almost certainly in every physiological system in that body we have gambled. That there is no effect on our, behavior, on our health, and that we won't pass any of this to our children. I think that, is almost certainly incorrect. I worry a lot about the effects of climate change on a lot of non weather.

[00:41:43] Issues. Right? We always so often talk about climate change in a very meteorological sense, right? Storms and heat waves and, but if you understand climate, you understand that the temperature of the planet. Is changing. And so that means any physical, chemical, biological, ecological, agricultural, industrial process that's temperature dependent can be moved.

[00:42:09] And so there's a whole lot of non weather phenomena, that the security community usually just ignores, that, may be even more consequential. Then the ones that we usually rattle off, right? And so, you know, I worry about the effects of climate on infectious disease. effects of temperature on antimicrobial microbial resistance, the effects of nitrogen and phosphorus imbalances, in our, hydrosphere in the oceans.

[00:42:48] I think we, we probably haven't framed that risk particularly well, especially. You know, I don't know if you, if any, if you or anyone have seen the, the news reports about crazy sea lions coming out of the ocean to attack surfers. No, I haven't. you know, there's this compound called domoic acid.

[00:43:14] I. That is excreted by some harmful algal blooms and Right. It's most famous for producing the effect that was, you know, turned into a movie, the Birds, by Alfred Hitchcock. But you're seeing a lot of, Strange effects on marine organisms that, you know, I think are indicative of. Parts of ocean stress that we don't usually think about.

[00:43:48] And so we think a lot about, you know, dead zones or, I, do, I think a lot about dead zones and the, effects on fisheries and the tele connected effects on

# The Great Simplification

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food and, you know, and livelihoods. But you know, these intersections between different stressors, I think are, I wish this were a more robust avenue of research, although at this point a lot of that very research is being undercut, in the United States.

[00:44:27] **Nate Hagens:** So, we've covered a lot of topics and each one of these topics could have been its own podcast, but, with this complex matrix of issues that we've alluded to. What advice or warnings would you rod give to political leaders right now who are either navigating or will have to navigate these things, under their watch?

[00:44:51] **Rod Schoonover:** Well, I would say probably the number one is to embrace complexity, rather than simplify it, you know, the linear, security solutions will fail. Against complex, interconnected threats, right? If you understand anything about poly crisis, is that a new approach is needed and what that approach is?

[00:45:19] I don't think we know yet, but we should figure it out. I think we, We need to prioritize things like resilience and more than resilience. Resilience isn't enough, right? It's, there's the prevention. There's a, an, building anti fragility, which I think is doable in a social system more than a physical system.

[00:45:42] Although our ecosystems do it, I think we need to really focus on, foresight. Because once you're in, an era of poly crisis, your options are very limited, right? you're just in a almost purely reactive mode. So trying to understand the risk landscape better. I think there needs to be a lot more investment in scoping out what the next couple decades look like.

[00:46:15] **Nate Hagens:** So first step is the US government needs to hire a lot more, complex systems scientists.

# The Great Simplification

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[00:46:22] **Rod Schoonover**: Well, certainly, but they also need, I, it, it's funny there, I'm a physicist. Right. And the fact that I was charged with things like wildlife trafficking just shows you, our training, right? If you look around the intelligence community, for example, and look at what the pro, the dominant academic background was or is.

[00:46:51] It's government or international relations or something like that. Is that the right training? That's always needed. But shouldn't we have, you know, a workforce that is cognizant of the moment

[00:47:05] **Nate Hagens**: the government is a microcosm of the population and then correct. So we need to have ecological systems, education in our culture, in our country, and then maybe it will percolate up to, The decision makers in Congress and in, the intelligence community

[00:47:24] **Rod Schoonover**: maybe, or maybe we do it faster.

[00:47:27] **Nate Hagens**: Yeah. maybe

[00:47:28] **Rod Schoonover**: we, maybe we, we have to do it

[00:47:31] **Nate Hagens**: faster. Yeah,

[00:47:31] **Rod Schoonover**: we do. Yeah. So you mentioned the super organism before, right? And so, which is, I think a really interesting way to conceptualize, you know, a lot of the issues that we're looking at.

[00:47:46] One thing that you know from, studying complex systems is that there are different classes of superorganisms, right? There are the mindless type, right? But then there are some that have a collective intelligence, and there are some, you know, some others, you know, whether you're looking at jellyfish or ant colonies or what.

# The Great Simplification

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[00:48:11] It turns out that changing the nature of the Superorganism. it's changing the rules by which they interact, right? That's what drives them into different structures. And so that, again, it's easy to say, but it's probably easier than trying to direct the super organism towards the common good. It's easier to rewrite the rules, that from which the Superorganism emerged.

[00:48:44] Yeah. So I think we're in a place where we can legitimately talk about those few lines of code in our, you know, in our political and social systems that produce this Superorganism and interesting, and it's an urgent, necessity to do so, right? This we are in a rather urgent

[00:49:12] **Nate Hagens:** predicament.

[00:49:16] thank you for your lifetime of professional service, on these issues. If you have a few more minutes Sure. I'd like you to take your, security hat and your complex systems hat off and just put on your human, American citizen hat on and, I'll ask you some questions. I ask all my guests, what would be your personal recommendation to someone listening or watching this show?

[00:49:45] Now, to that they could do in their own lives this week, this month, to help address, some of the issues that, that we discussed or more broadly, the economic, ecological, systemic risks we face.

[00:50:00] **Rod Schoonover:** Well, one I would say is educate yourself. deeply stay informed. Don't disconnect. I would say build resilience.

[00:50:10] Locally, in whatever way that looks, to you. that is the way that the world builds resilience. It's, not top down, it is bottom up. And we're in a moment, where bottom up is the most important, approach. And I would say also, as we're looking at opportunities to build. You know, build what we want, going forward is I

# The Great Simplification

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think we really need to examine a lot of the cognitive biases that all of us have as we look for ways forward.

[00:50:53] There is a, there's a persistent tendency for us to think. Since it is the way it is, that's the way it's supposed to be or will continue to be. But if we have the courage to face the moment we're in, then we may be able to get out of this mess.

[00:51:15] **Nate Hagens:** And I Are you were your former college teacher? Or do you still teach college?

[00:51:20] I do. Yeah. You teach where? I teach at Georgetown.

[00:51:25] **Rod Schoonover:** what is the name of your class? I have two classes. One is climate and Climate Change, where I talk about how the climate works and how it is changing these. This is in a non-majors class. this is really the only reason I'm teaching it, because I like future leaders of the world, to know about climate.

[00:51:48] Climate science. And then my other class is Introduction to ecological security, where I talk about ecological change, as a security issue.

[00:51:57] **Nate Hagens:** So how would you change the advice that you just gave to our listeners to, adapt, and, be for 19, 20, 21 year olds your students? what sort of advice do you have for young people?

[00:52:10] **Rod Schoonover:** Don't let anxiety. paralyze you? there is a lot of anxiety. I think it's well-deserved. Anxiety, I would say. stay curious, right. the, I would, it goes back to this. This, I said to my class on the very last day, because I've been struggling with how do I talk to my classes at this moment?



# The Great Simplification

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[00:52:40] 'cause this year, 2025 was foundationally different than 2024. Everything was different, right. Georgetown is in. Washington DC and this place where I'm in Capitol Hill right now is changing remarkably, it's personal, it's political, but, you know, prepare yourselves for the opportunities of the 21st century.

[00:53:10] There we are. I would say in the fir, this is the first time in my lifetime. I have seen such transformative change happening. It's not necessarily in the right direction, but it is modeling. Oh, things don't have to be incremental, right? Because incremental, in many ways is the same as non-action. So prepare yourself.

[00:53:40] I think, I think a lot of great things can happen if we have the courage. To make them happen.

[00:53:49] **Nate Hagens:** What do you care most about in the world, rod?

[00:53:51] **Rod Schoonover:** My family, I think everyone says that. I think my country, my black guitar, that mocks me for not playing it, as much as I should. I find myself writing, dystopian analysis a lot more, and, but I think that method, you know, that.

[00:54:08] That thing that we all need to stay

[00:54:10] **Nate Hagens:** human and sane. I increasingly write poetry, some of it dystopian. You could write dystopian songs and play them on your black guitar.

[00:54:17] **Rod Schoonover:** I could. I could. I bet they would be big hits

[00:54:21] **Nate Hagens:** for a moment. So, I. If you could wave a magic wand and there was no personal security risk to your person, what is one thing you would do to improve human and planetary futures?

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# The Great Simplification

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[00:54:34] **Rod Schoonover:** You know, there's a dark answer and a light answer, and I'm gonna go with the light answer 'cause there's a dark one too.

[00:54:40] **Nate Hagens:** Well, the viewers are gonna wanna know what the dark answer was. I'll let you do both if you'd like.

[00:54:44] **Rod Schoonover:** Since it's a magic wand and we don't have to talk about policy. You know, I would instill empathy.

[00:54:50] Across humanity. I think the inability to truly understand and care about each other's suffering and the suffering of other living entities, is at the root of many of our problems. Not all of them, but you know, global empathy would just. Profoundly transformed the way we engage with each other, right?

[00:55:14] These are the rules of the game that could be rewritten and you have a different Superorganism,

[00:55:22] **Nate Hagens:** emerge how we relate to each other and to the natural world, and, connection to the web of life, right? exactly said differently. Yeah,

[00:55:30] **Rod Schoonover:** exactly. And then the dark version is really take on, the moneyed classes that have, extracted so much wealth from the planet and people and, and return that, that wealth to the people.

[00:55:49] **Nate Hagens:** it was extracted

[00:55:50] **Rod Schoonover:** from,

[00:55:51] **Nate Hagens:** that won't solve climate change because then the people that get the resources are gonna still buy things that, require coal, oil, natural gas, and materials,

# The Great Simplification

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[00:56:00] Rod Schoonover: possibly unless you rewrite the rules of the program. Ah,

[00:56:03] Nate Hagens: yes. Coupled with that. So if you were to come back in this show in the future.

[00:56:10] what is one topic that you have especially expertise on that you could give a deep dive on that's relevant to human futures As nerdy and as esoteric as it might be?

[00:56:22] Rod Schoonover: I think really, you know, one is. What should the intelligence community look like? A lot of people have never met anyone from the intelligence community.

[00:56:35] what does it do and what should it do is one, but I think the better one is what does a version of the planetary boundaries framework look like when it is reconceptualized for not human existence? But for this kind of security that I've been talking about, right? You, when you look at these thresholds, bad things happen well before you're at those thresholds.

[00:57:10] And what I like about the Planetary Boundaries Framework is that it categorizes, these stresses, There are some others that's not inside of that because it's not intended to capture every piece. And so there's a, there's something that I have been calling nature's contributions to security. Right?

[00:57:33] How do you think of ecosystem services and analog to that, right? So how do you think about, yes, you can look at the economic benefits of mangroves, but what are the security. Of mangroves, how do they stabilize societies? Right? These are things that are not captured necessarily in an economic. Frame, right.

# The Great Simplification

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[00:57:59] What are the benefits to stability?

[00:58:02] **Nate Hagens:** We might have to do that 'cause I would like to know how mangroves stabilize societies. Rod Schoonover, thank you so much for your time today. Thank you. And thank you for your important work. Thank you. If you enjoyed or learned from this episode of The Great Simplification, please follow us on your favorite podcast platform.

[00:58:20] You can also visit The Great Simplification dot com for references and show notes from today's conversation. And to connect with fellow listeners of this podcast, check out our Discord channel. This show is hosted by me, Nate Hagens, edited by No Troublemakers Media, and produced by Misty Stinnett, Leslie Balu, Brady Hayan, and Lizzie Siri.