Episode 137: David Wrathall

# KL: Katie Linder

# DW: David Wrathall

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# [intro music]

# Segment 1:

# KL: Welcome to “Research in Action,” a weekly podcast about topics and issues related to research in higher education featuring experts across a range of disciplines. I’m your host, Dr. Katie Linder, research director at Oregon State University Ecampus, a national leader in online education. Along with every episode, we post show notes with links to resources mentioned in the episode, a full transcript, and an instructor guide for incorporating the episode into your courses. Visit our website at ecampus.oregonstate.edu/podcast to find all of these resources.

On this episode, I am joined by David J. Wrathall, an assistant professor of Geography in the College of Earth, Ocean and Atmospheric Sciences at Oregon State University. He is the lead author for the sixth assessment of the Intergovernmental Panel on Climate Change for the Chapter of Livelihoods, Poverty, and Sustainable Development. His research focuses on forms of human mobility and forced migration resulting from environmental problems. He draws from climate change adaptation, risk, resilience, and sustainability studies. In addition to climate change, he considers other destabilizing influences on development including drug trafficking and violent conflict.

Thanks so much for joining me in the studio today, David.

**DW:** It’s so nice to be with you.

**KL:** So I’m really interested in your research because it’s all about destabilized livelihoods and development, but from all of these different angles. So can you talk a little bit about what that means for you and some of the things you’re looking at?

**DW:** Yeah, so much of my work is in the developing world. Where people have a very close relationship with their environment and they rely on it for things like agriculture, for the livelihoods, to pursue a development objective. So that kids are better off than their parents and that each generation can sort of move towards what we think of as development. And there are all sorts of reasons why that progress can be destabilized. And the two major forces that I’ve looked at are climate change impacts and drug trafficking. The perfect expression of that destabilization is when people are forced to migrate because they can no longer persist in place for whatever reason just because it's not safe or they can't make a living or even their house is underwater and they can't live there anymore, so yeah.

**KL:** So I'm really curious to what degree so we're thinking about climate, we're thinking about migration, we're thinking about drug trafficking. We’ll kind of pull these apart in different ways, but thinking about the migration example for instance, how much migration are we really talking about here? Like are there certain parts of the world that you're focusing on? Are there large communities that are all migrating? Are there kind of individual families that are migrating? Like what is kind of a scale and scope of what you're trying to explore with the migration piece?

**DW:** Well so a migration is normal. To be human is to migrate. We all move, we all, during different periods of our lives are more or less likely to move for job, for reasons of livelihoods, or to be with family. So migration is normal. What's interesting to me is when the decision to migrate is not voluntary and people have to move because their strategies have been destabilized. So we can think about the major drivers of migration that might be forced like conflicts, like war because you just can't farm anymore or your house doesn't, your community it's not safe to live on a coastline anymore. And so all around the world in almost every region on earth we have examples of forced migration, even here in the United States we've had, you know, the major case study of this was Hurricane Katrina, which hit in 2005 along the Gulf Coast and really changed patterns of migration in New Orleans and other places as well.

**KL:** So what are some of the kinds of research questions you're asking in this area? What are you exploring?

**DW:** To me I'm really interested in permanent irreversible changes to a place that require migration. So when a place becomes effectively uninhabitable—and that's a really subjective judgement—but we see that people make that judgment and the evidence is their migration.

**KL:** Interesting. Okay, so I could imagine this migration is happening at a community level but also at maybe like a neighborhood level where people are deciding this is no longer a safe place for me to live. How are you tracking this migration, like how do you know, how are you seeing the patterns? You know, what are the different ways, especially I would imagine, if it's you're not local to this area? Is it something that happened five years ago and you start to realize that it happened is it something that's happening kind of currently and you're trying to track it?

**DW:** So the key is to tie in, okay so to back up a little, migration does happen in communities, and the migrations of individuals, let me back up even a little more, okay people, we think of migration as a as an individual decision and, you know, we have one body we can locate it in one place at any given time, but the reasons why we might locate it somewhere are not always just our decision, it's related to a household. That household exists within a community, it exists within a social network and so all of the changes that might affect social networks and community’s influence where that person decides to put their body. And so some of the key questions to me are the timing of climate change impacts or other destabilizing forces and the decisions that people make to relocate their bodies somewhere else. So if we can sort of associate these together the way that these might interact specifically what's really problematic you know we think about adapting to climate change you know, adapting is responding to the impacts of climate change when we have to relocate our bodies in order to adapt, and then in many cases we have to use our bodies as labor to earn a wage somewhere else so that we can adjust to the consequences that we're not responsible for. That’s a problem.

 **KL:** Well it seems like adapting to climate change implies like a slow adaptation. Whereas I think what you're talking about is in some cases very sudden, where there's a forced migration and people need to get up and leave because it's no longer habitable for them to stay in their original location.

**DW:** You used a key word setting, and so I'm really interested in the thresholds for migration when people reach a threshold at sort of a tolerance threshold and they can't that for whatever reason they decide that this isn't this strategy isn't working we need to move. So one of the really interesting questions is the extent to which these thresholds will be felt simultaneously among similar groups of people at very large scales. And so we can imagine as the sea level rise in coastal communities who are exposed to tropical storms where we might see you know a heightened risk of inundation flooding and inundation storm surges etc. that make livelihoods hard and that make settlement patterns you know can destabilize settlement. And so it could be along a specific coastline you might see a lot of communities being destabilized all at the same time and so this is the case where I got my start on this topic in in Honduras and northern Honduras. There was a whole series of coastal communities that all within the space of a couple decades all started experiencing a similar pattern of catastrophic flooding and migration and so you know is the Honduras is a very small country and these are very small communities but if we scale that up to a planetary level and we start thinking forward as climate change risks become exacerbated then we could talk, we could be talking about a phenomenon that is really sort of outsized and I'm just interested in the potential for that sort of sudden change that might occur in different societies.

**KL:** So it's interesting you brought up this idea of when people have this forced migration they have to find new jobs, they have to find any places to live like there's a very human aspect of this phenomenon that you're describing. Is that something, are you getting kind of down to the individual level in terms of data that you're collecting the experiences that these people are having? You know as they're having to go through this forest migration is to what degree is that part of the research that you're doing?

**DW:** I'm super interdisciplinary, that's my training. I'm a geographer, and my specific background has exposed me to a lot of different methods that I still use today so I'm very interested in, yes I mean the priority, the research priority is individual human lives and household, the lives of households that are facing these risks, but there are some really creative ways that we can measure the problem at very large scales. And so I am yes, I am interested in individuals and I still interview individuals and I visit locations that are impacted but I you know we're all carrying these mobile phones and are in our pockets and we're transmitting huge amounts of data about where we are on a minute-to-minute basis, and so if you string those all together all those locations you can figure out where someone migrates throughout the course of a year or even longer. And if you add all of those data points together from an entire society, then you can get a pretty good sense of how everyone's moving all the time and so this is the direction that I've gone with my research over the last several years since about 2004 and I still maintain a fascination with that. But I think to me it's important to never lose sight of people and the individual challenges and the sort of household challenges, community challenges that people face.

**KL:** So as you're saying that I can hear some of our listeners going, “so wait, are you tracking me via my cell phone, where I am at any given time?” like can you talk about access to that data and how you're kind of integrating it into your research?

**DW:** So I mean this is data literacy stuff right we should all be, we're all using these phones each of our smart phones have dozens of apps on them you know these apps are enabling the storage of our location you know I mean we should we should all be super aware of this stuff right? That digital, our use of digital infrastructure leaves a trace and we're not just passing through this world before you know we're leaving a trail of breadcrumbs and so yeah we should all be aware of that. That company's own access to our data and they can do with that data whatever they want. We sign away our, you know there's this thing called the Terms & Conditions sheet that we all we all agree to. Yeah and so the first data set that I gained access to was a mobile phone network, the Grameen phone network in Bangladesh, a very vulnerable country and the data agreements were signed immediately prior to the Snowden revelations, you know this is Edward Snowden who talked about what the National Security Agency was doing with all of our data and the sort of research that was possible. And so I think that if we hadn’t signed that a data agreement, if we hadn't gotten to it when we did if we hadn't signed it when we did we might not have been able to even access it and increasingly it's harder to get the unabridged versions of these data. But you know we should just be aware that these data exist and they can be used for really interesting powerful research or for you know surveillance and it's just the world we live in.

**KL:** Interesting. So I'm curious how you blend kind of these larger data sets of things you're able to collect with this more human level exploration that you're doing and how those things work together. Because it seems like there are very different research questions going on there in terms of what you're trying to explore. How are you balancing that? I mean are they entirely different projects in your mind are they inter-related in terms of how you're trying to answer different questions?

**DW:** For any one paper they tend to be different but for, and I do employ these different research strategies for you know, different projects but in geography we have these this this concept of pattern and process that we can detect large-scale patterns in data. I'm you know, for decades we've had these satellites scanning the planet just generating volumes and volumes of data on the surface of our planet and it's kind of changing dimensions of our planet's surface and with those volumes of data we can start to detect these really interesting patterns of change we can start to see what a drought does and what a you know how a storm manifests, how kind of catastrophic flooding can change the course of a river. But the process is something different, process is a set of human decision-making on the ground that might explain this pattern. But it's it requires a different research approach and so we you know in geography we strive to identify these patterns and explain them with a process and I think that's what's behind my different methodological choices.

**KL:** Okay. Well, David, already this sounds so complicated in terms of the different layers that you're trying to build in. We're going to take a brief break. When we come back we're going to hear a little bit more from David about how this work interacts with his drug trafficking research as well. Back in a moment.

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# Segment 2:

**KL:** So David in addition to the work that we chatted about in segment one, I know you've also started integrating some work on drug trafficking into your understanding of how people and communities are destabilized and so I'm curious how this came to be because some people might think climate change, drug trafficking, not seeing a ton of connection there, but I'm sure there is one. So how did you start to do work in this area?

**DW:** My research on climate change and migration began in northern Honduras, which was a region really badly affected be hurricanes, but it just so happened that when I began my work there, as a Peace Corps volunteer, and then later as a PhD student, we referred to this time now as the Narco boom of the mid-2000s. This is a time in which Honduras, Guatemala, Nicaragua became the primary transshipment location for the inter-American cocaine trade. So at its maximum, the place where I was doing my field research on climate change in migration, this is the (La) mesquitia, the Mosquito Coast, it was the recipient, it was where above ninety eight percent of drug flights originating from South America were landing on their stopovers to you know the north where the where the drugs were are sold and consumed. And so drugs were raining from the sky while I'm doing this research and I couldn't ignore the drug trade as a potentially destabilizing force on Honduran society so you know, I mean right now we're grappling with the Central American “migrant crisis” you know in quotes, and certainly I mean this is a major policy issue we talked about this it at a national level in terms of our migration policy this is absolutely one of the major drivers, the inter-American cocaine trade, and its shift, into the sudden shift into this region.

**KL:** Okay so I'm curious, you're down in this foreign country, you're a PhD student trying to probably just finish your dissertation, get this wrapped up, and all of a sudden this entirely different destabilizing force shows up and you're like “oh well clearly this is a factor here.” Talk us through your decision-making at that point are you saying, “well I need to integrate this into my current study,” or are you saying, “I'm just going to put a pin in this and come back later, and maybe study it in a different way.” How are you kind of integrating it into that project that you had ongoing once you realize that this was happening?

**DW:** That's a really good question, and for a long time these were two parallel research tracks and they're starting to come together and I'm starting to be able to see them in the same light, you know climate change and drug trafficking as threats to sustainable development. But you know, yeah this was just an addendum in my PhD. It was a chapter at the end that wasn't related at all to mine to my major research, and this is kind of a nice story you know I just basically did a write-up on the phenomenon as I saw it, and then I later met up with some other researchers who also spent time in the region and we put together a hypothesis in which that we call the Narco Deforestation Hypothesis now. This is that as drugs moved into a region we could see an associated impact on the landscape that all of that money from the drug trade had to be laundered. The people had to take that illegal money and make it legal, and in Central America the best way to do that is to fence off a piece of forest and to chop it all down and put cows on it. There are other ways to do it too, but you could see this explosion of change in the in the landscape as drugs touchdown on a place.

I was doing my research, my PhD research, on catastrophic flooding in coastal communities and all of these community members all these people who are experiencing this flooding they said to me, “David, you should, in order to understand flooding, you should go and look at what's happening in these watersheds, you should just take a trip.” So I spent a few weeks backpacking around with a motorcycle and a map and a guide up in these watersheds and I found that every drug trafficker in the region was establishing a gigantic cattle ranch in in this area and so it started to put together the hypothesis that as drugs come into a region it changes the natural environment, it changes forest cover, it changes watersheds. And so I should be clear that we haven't modeled the relationship you know so there isn't, we haven't studied clearly the relationship between land cover and flooding, you know, like the Narco Deforestation and flooding, but my hunch is that it exists.

**KL:** So, David, I've got to be honest when I'm hearing you talk about this and I'm hearing you say, “well I grabbed a backpack and a guide and we just went out there and figured out what these drug traffickers were doing,” it doesn't sound like the safest thing to do as a PhD student and this seems like an area that could be challenging for a researcher to really dig into and understand what are the patterns and the destabilizing forces of something like drug trafficking, whereas something like climate change, I don't know maybe more safe in terms of what you're trying to explore, maybe I'm wrong. Is this something that kind of comes into your mind as you're starting to explore this, like how do I find out the information I need to know in a way that is going to be safe?

**DW:** Yeah, so I went into this with clear eyes. I lived in this country on the north coast of Honduras as a Peace Corps volunteer, I understood the local context very well, I understood the risks, there were some risks, and I could tell you stories.

**KL:** Yeah, I bet you could.

**DW:** Yeah, I've ridden in a truck full of cocaine, I've seen drug planes shot down, I've interviewed three different drug traffickers, and so it wasn't without risk, but yeah but I had clear eyes about it and I also have clear eyes about my positionality as a privileged academic from North America, that affords a certain level of security, no one's going to hurt me, or think that there wouldn't be consequences to hurting me. And so I think that did, does factor in.

But what you're suggesting is that we don't study things that aren't safe, and I think that that's a bias that can influence the way we do science and it's the way we you know, we can conduct inquiry of the most important phenomenon or phenomena challenging development in a world today. You know these issues of great global concern: climate change, drug trafficking, conflict. If we only studied the things that we're safe, I don't think, we wouldn't get to the good stuff.

**KL:** So I'm curious around this research on drug trafficking, what are the kinds of questions you're asking here and how do you see it as related to kind of the destabilizing theme that runs through your other research?

**DW:** So how do you study this systematically? The hypothesis was that drug trafficking arrives in a location that all of that those billions of dollars that might arrive to a region need to be, of illegal money need to be circulated, need to be laundered that might have social consequences and environmental consequences, and those could be observed. And so I was part of a team that identified a pattern of anomalous deforestation from satellite data, so as those forests are being cut down and changing over long periods of time we see an associated pattern in the landscape of a forest loss that we can associate with the, you know, somewhat problematic data we have on cocaine flows. And that's how we were able to establish this hypothesis, the Narco Deforestation Hypothesis.

So we've also accompanied that with a lot of ground trothing, a lot of fieldwork. I spent seven weeks this last, since February in Costa Rica Honduras and Guatemala doing research on this, talking to local experts at identifying dynamics on-the-ground locations where some of the key dynamics are operating, and so yeah it's again this issue of pattern and process to really understand clearly what's happening.

**KL:** So with this particular research to some degree it sounds like you're kind of building the plane as you're flying it, like you're kind of seeing things as you go and investigating them, or are you going in with a pretty clear sense of what you think is happening and trying to affirm it through the data that you're collecting?

**DW:** That's a great question. So I think obviously doing the research identifies key questions and I think I've tried to be really opportunistic about answering what I think the most, the real key questions are when we're considering sustainable development and its challenges. But certainly, I maintain and I have always maintained an interest in migration as an indicator of some kind of problem that people might encounter and I think that's a theme that runs throughout. I mean even in the case of drug trafficking, there are lots of instances of people moving, seeking asylum in the United States because it's just not safe. Their trajectory has been destabilized.

**KL:** What's next for you, David, in this work? What are you excited about, what are kind of the next directions that this is moving for you, or even maybe for the larger field that you're working within?

**DW:** That's a great, great question. It's an exciting time for people who study human environment interactions, so a couple, I have so many ways to respond to that. But one of them is that you know, I'm a lead author at the Intergovernmental Panel on Climate Change, the IPCC we call it. Occasionally we do these assessments the state of our knowledge on the climate, on climate change and its impacts. And so we've seen a transition occur from an emphasis on the physical sciences of climate change to the human dimensions now. And so I think, we think, in this assessment really the human dimensions are going to be where we generate the evidence that'll really clarify our understanding of climate change impacts on development on human life. And so I've been invited to the chapter called Poverty, Livelihoods, and Human Development as a lead author on this key assessment. And it's really exciting to you know, at one point it was my responsibility to sum, to accurately depict the vulnerabilities that my research sites faced you know the people living in my research sites, but as an IPCC author I have a responsibility to depict climate people, climate vulnerability, of people facing climate change impacts everywhere. And so it feels like a big responsibility not just to my field—the people who do research on climate change impacts—but also all of those people who encounter those impacts out in the world. And I'm just, I'm honored and kind of I'm honored and excited by that work.

**KL:** I'm curious if this far in your research you feel like there are any maybe like broad misunderstandings in this area about who's affected by these climate change impacts, or who is doing the migration, or why they're migrating in the ways that they are, why these patterns are emerging. Are there certain things that you feel like your research is kind of uncovering that help people better understand this and to maybe dismantle some mythologies around human migration?

**DW:** That's a very good question. There's an old idea that that I hope my research contributes to challenging, and it's the idea of environmental determinism. That human society that that even the human species is a product of our environment and that all of the difference we see across our planet can be explained by environmental differences and that that our differences are somehow innate, predetermined by environmental change, and I think what my field and my particular research is showing is that there are no predetermined outcomes like migration. When we experience climate change impacts that all of these things are mediated by our decisions, by policy, by development strategies that occur over long timescales. So when we consider why people are vulnerable to climate change and why they might have to migrate to climate change we might just look back at histories of colonization and you know the sort of resource extraction and the inequality of wealth that emerges in a society over a long period of time in association with a colonial strategy. And that's why people are vulnerable to climate change and not for any other, you know, sort of more native quote “reason.” Yeah so this this idea of environmental determinism is really problematic and I hope we can move against that.

**KL:** All right, well David, this has been fascinating. Thank you so much for taking some time to come into the studio with me and offer some insights into your research. It's been really interesting.

**DW:** Thank you so much.

**KL:** Thanks also to our listeners for joining us for this week's episode of research in action. I'm Katie Linder and we'll be back next week with a new episode.

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