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The Last Stand Podcast Episode 2: The Future of Forestry

[music interlude]

Diya Vij (DV): This is *The Last Stand* podcast, a mini-series on the social life of forests, reparative land management, and just climate futures on the occasion of Creative Time's newest public art commission, Kamala Sankaram's experimental opera of the same name.

Over the past four decades, Creative Time has commissioned and presented ambitious public art projects with thousands of artists throughout New York City, across the country, around the world, and even in outer space. We work with artists to contribute to dialogue and debate on the most pressing issues of our times, and to foster dreams for our collective future.

Kamala Sanakaram is a composer and performer, moving freely between the worlds of experimental music and contemporary opera. Expanding over five parts and ten hours, Sankaram's *The Last Stand* invites us into 300 years of sonic history told entirely through field recordings. As the years unfold, the human impact on the forest becomes visceral: species disappear, storms intensify, and the drone of highways and planes becomes constant. At the heart of *The Last Stand* is the fundamental truth that our planetary survival depends on collaboration with our natural neighbors.

Welcome to *The Last Stand* podcast. I'm Diya Vij, Creative Time's curator and your host.

This episode considers the future of forests and what equity and repair in land management could and should look like. We start with a roundtable on the future of urban forestry in New York City with advocates from the Forest For All coalition.

[music interlude]

Alexander Bender (AB): My name is Alexander Bender. I'm the co-founder and managing partner at Tri-Lox. We are the New York City sustainable wood resource. We do design and fabrication projects and offer an array of sustainably sourced and handcrafted wood products for architectural and furniture applications, and we are in Brooklyn, New York City.

Nelson Villarrubia (NV): My name is Nelson Villarrubia, I'm the executive director of Trees New York. Our mission is really to train and mobilize volunteers to care for New York City's urban forest and plant trees.

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Lindsay Campbell (LC): I'm Lindsay Campbell. I'm with the USDA Forest Service. We have a Northern research station. I'm a research social scientist. Here in New York, the Forest Service doesn't own or manage any land, but we partner with the city, like the New York City Parks Department, with NGOs, with universities to understand the city as a social ecological system. And so a lot of my work focuses on stewardship, people's relationship to the urban environment, and environmental governance.

Joe Chara (JC): My name is Joe Chara and I'm the Director of Horticulture at the Greenwood Cemetery, which is a 478 acre cemetery in Brooklyn, New York. We're really interested in trying to figure out how to manage Greenwood, not only as an urban forest, but as an urban grassland, and consider the impact that our landscape management practices have on the greater community of Sunset Park and beyond.

Tami Lin-Moges (TL): Hi, my name's Tami Lin-Moges. I am with The Nature Conservancy. The Nature Conservancy is a global conservation organization that's focused on conserving water and land on which all life depends, and that definitely includes people. I am the Deputy Director of our city's program in New York.

And, you know, for us at the city's program, we really focus on building healthy cities that are prepared to face a new climate reality. And over the past two years, we've been working on this initiative called future forest NYC, which has really focused on how to better protect, maintain, and grow New York city's urban forest. It's a coalition that we have formed over the past two years and is made up of different sectors: public, private, and government entities, all working together to advance the shared vision for the urban forest.

And some of the goals that we have is that we would like to advocate for a 30% canopy cover by 2035. That is an increase from our current goal of 22%. And that is an ambitious goal. But to do that, there are many things that we would like to see happen and the coalition is working towards. One is creating a long-term master plan for the urban forest on both public and private land. We would love to see an increase and more equal distribution of funding for trees. We want to strengthen regulations around trees that relate to protection, maintenance and growth. We want to cultivate urban forestry careers and invest in workforce development opportunities in this industry as well.

AB: We have almost 7 million trees in New York city and they are composed of different areas of the city. How do those different areas impact the way that we manage these trees?

NV: One of the interesting things about thinking of New York City's urban forest is it's something that a lot of people don't think about until they're introduced to the concept and

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introduced to trees in the urban forest. Once they understand a little bit more about the tree or the trees on their block they start, it opens up a new world for them. So once they don't just see the tree in front of their house, but they now see this Honey Locust, and there's Pin Oak. They start viewing this urban forest differently and it starts coming together, so we start looking at how the natural and the built environment work together.

TL: The 8.8 million people in New York city rely on the 7 million trees here to survive and vice versa. The trees rely on people to take care of them as well. So our survival and our ability to thrive are really intrinsically connected. And so that's why we really need to make sure that we're continuing to invest in this asset and invest in the maintenance and invest in the people who take care of these assets as well.

And adding to, kind of, think about where trees are physically located, I think a lot of people think of trees on streets and in parks and the natural forest areas throughout the city as well. But, you know, just to give a few numbers, about 53% of our urban forest canopy— think of canopy as the cover, not the individual stands, but we're the shape that the trees provide—, 53% of it is managed by New York City Parks. But the rest of it is not. About 35% of it is on private property. So that spans on single family homes, private institutions, campuses, you know, apartment buildings that might have some green space and have trees on their properties as well. The balance of it is a mix of other city agencies, federal and state properties in the city as well.

But again, think about the 35%, that is really up to each homeowner and property owner to take care of. And right now there really is this real mix of managers and owners of where trees are, and that also sometimes leads to a really, you know, uncertain future for the urban forest. So a lot of those trees could be removed at any time, and they're not protected. And so when we think about the future of the urban forest, we really want to think: how can we better protect, maintain, and grow the urban forest as a whole, too?

LC: Trees in the city are a space or a place where we can express our care and our concern for our neighbors, our non-human neighbors, our communities. It's sort of a third space, you know, especially as we're all pent up in our, in our homes, where we can come together and do collective work sort of beyond the private sphere.

And there's a lot of research that shows that tree planting and tree care can be an on-ramp to other forms of civic engagement and activism. And also that stewardship has a role to play in the long-term recovery from disasters and disturbances. So they're all of these, all these

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obvious air quality, water quality noise, sort of biophysical buffering, but they're also really enmeshed in our, in our social systems as well.

AB: Joe, I wonder if maybe you could speak a little bit about managing a large area of land with climate change in mind. I know you guys have done a bunch of interesting research on this, and having the benefit of a controlled, defined area as a way to model what could happen in a larger area or thinking about it on a wider level for our whole urban forest, here in New York City.

JC: At Greenwood, we most acutely are aware of the fact that there may be social impediments or cultural impediments, that for those in our community, to access Greenwood as a green space, or to accept it as one, we sort of recognize that. Our goal is to really avail the community of what we have at Greenwood: over 8,000 trees, a wide variety of species, and documentation on those trees.

We've started a partnership with you guys, at Tri-Lox about reclaiming and milling the wood that we removed from Greenwood. That's such a representative project of a lot of the things that we're trying to do at Greenwood because it removes, you know, we have to remove large trees every now and again, and we ship the wood and we deliver it to compost facilities throughout the city. But if we could reclaim that wood and use it for both educational purposes and potential reuse, it provides a much more robust avenue than just putting it in compost facilities or in the dump.

TL: As we're planning and designing and building our cities under extreme climate variation, we have to plan for multiple forms of disturbance, and we can't only adapt to the prior disturbance. And in doing that, we have to prioritize the most urgent needs and the voice of frontline communities in that work. And our research, our social science research, has found that local stewardship groups are really important and that they foster social cohesion and social trust. Those are some of the building blocks that we need to invest in in order to be resilient to any disturbance, whether it's a heat wave or a flood or a pandemic.

So, just really emphasizing that, yes, we need to rework these whole infrastructural systems, but we also need to invest in human capacity in fostering local leadership. In thinking about that whole system of stewardship, where we have capacity, where we have gaps and how we can take a community forestry approach, to work really thoughtfully in that context. So I just wanted to sort of tie together some of the equity questions and some of the climate crisis questions. They sort of come together in how we engage communities in their place and sort of center their voice and action.

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LC: I think that we need to re-center the role of community in urban and community forestry. That is our field, urban and community forestry. Sometimes it becomes this shorthand of urban forestry, which is a bit more technocratic. And we need that technical expertise, yes, but we also need to really think about the power dynamics that are involved in decision-making, in the way resources flow, you know, what Nelson described as sort of showing up in a community, building relationships with people in place, centering the voice and priorities of the folks that live in that place. That's a paradigm shift. That's a way of doing community forestry that not everyone does. It's in our roots, it's what community forestry looks like in the global south. But, can we take the best of our sort of highly professionalized approach to green infrastructure, but also truly marry it with a community forestry approach that is a bit more bottom up?

You know, as a federal agency, president Biden made the recent executive order that said we have to look at the racial equity implications of all federal programs. Well, that includes our urban and community forestry program. That includes research and development, so I see that as a call to action, you know, for all feds to really think critically about how they're going about this work. You know, I wrote about this in my book about the million trees campaign. You can plant a million trees with robots, you can plant a million trees with paid workers, you can plant a million trees with volunteers, you can plant a million trees in a workforce development context. Where you plant those trees, how you plant those trees, with whom, and under what decision-making context makes all the difference in how, sort of, power is shared and what ends are achieved.

NV: The days of a politician or an elected just showing up with a shovel and a film crew to plant a tree is over. That hasn't worked and planting a tree alone doesn't mean that that's where it ends. That's really the very, very beginning of this whole equity issue and addressing climate change. It's really what Alexander just we're just talking about is like management and maintenance through the whole life cycle of the tree. So it's really about thinking from that beginning point to that end point and working with the community to do that.

TL: All of these issues are very interconnected and all of these are very intersectional too. Right? We talk about environmental justice or climate vulnerable communities, and that we already know that those are the same areas that are disproportionately affected by high incidence of air pollution and respiratory illnesses and extreme heat too. And these were the same communities that have been saying this for a very long time and have been advocating for themselves for a very long time, too. And we're seeing that that also connects with the environment, right? And I do think that it requires a huge paradigm shift, you know, and I think one of the things that, you know, our Forests For All NYC coalition is advocating for is that we need a long-term plan for the urban forest on both public and private property. And it really takes all of these issues into account and not just looks at a very top-down approach of, "we need trees, this is how you maintain it." Yes, we need that. But also we want to make sure that the

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process in creating this plan is also equitable and that we have those diverse and inclusive voices at the table and have those communities there and be able to advocate on these issues and really think about this holistically as a, “what is it that they need in their communities?”

[music interlude]

DV: Our next guests are ecologists and editors Dr. Angelica Patterson and Dr. Suzanne Pierre. They discuss the intersection of climate change and human inequality. Both women are fierce advocates for reparative practices and scientific methodology and give us a lot to work towards.

Angelica Patterson (AP): So, my name is Angelica Patterson. I'm the master science educator at Black Rock forest in Cornwall, New York, and I am also a trained plant ecophysiologicalist and I did my studies at Columbia University. And I studied how climate induced migrations may be impacted by drivers, such as physiological mechanisms of different types of trees.

Suzanne Pierre (SP): My name is Suzanne Pierre. My pronouns are she and her. I am by training a biogeochemist and ecosystems ecologist focused on nutrient cycling in forests and soils. I'm also kind of a developer of, and student of, critical ecology which is kind of a discipline of ecology which aims to unite questions about social power dynamics and oppression as drivers of global change. And I am a research scientist at the California Academy of Sciences in San Francisco, and I'm the founder director of the critically ecology lab, a nonprofit research organization.

I think the primary draw of the soil was its complexity and simplicity, or perceived simplicity. I found that it was really intriguing to learn that there are organisms, there are whole communities, there are invisible chemical processes occurring in soils and on top of all of that, I didn't know of any black women studying soil at that time. And there was something very exciting about the kind of formal estrangement between black identity and soil. And as a college student I don't know why I seized upon that, but it was like, “Oh, this is, this is something I want to pursue for the rest of my life.”

AP: I would say at first I wasn't really thinking about going into plant science. I at first wanted to become a veterinarian and I quickly realized that that probably wasn't the best path for me. I had to kind of explore what I wanted to do in my undergraduate years and ended up taking a conservation biology course that pretty much changed my trajectory. I was still in love with animals and thought maybe I'd work in wildlife research or things like that. But I ended up landing some opportunities in the lab dealing with plants as well as in the field. Just getting some experiences overall, taking care of plants in the greenhouse and decided that, “Wow, plants are very peaceful, they don't talk back. I like this field,” and I just decided to kind of take on more and more opportunities to explore the plant sciences.

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SP: I was thinking about the kind of functional role that a relationship with nature can play in a person's life. And I was thinking really about how relationships with nature have, you know, these well-documented, well-researched kind of positive impacts on our psychology, our health, as humans, but also our kind of way of thinking about possibility and I think also affects our creativity and kind of expansive thinking. And when society is set up in such a way that it is pretty impossible for certain kind of sub subgroups of people -- particularly black, brown, and indigenous people who, you know, have cultural and historical ties to many landscapes, but in this country, in these last few centuries, have been programmatically and legally prevented from interacting with landscapes -- there's this sort of, I think cultural, generational estrangement that happens. And we see that show up in, many people of color who are listening would identify with this idea of being nervous about going into the woods - particularly alone, but even in groups.

That cultural phenomenon and kind of relational phenomenon is deeply tied to how our country is set up both geographically, economically and legally. So, yeah, I think that what I was writing was it's no surprise that there are no black women studying soil, or there are very few, and I don't know them. Because why would there be if that sort of kindred relationship was never allowed to develop in the first place.

AP: Suzanne definitely hit it on the head, yo know, that there's this history of exclusion. You read about sundown towns and, you know, places where, you know, black people we're really prevented from traveling the nation. And traveling and seeing these beautiful lands that very historical, you know, white men who were leaders in the conservation movement, valued. We've been traditionally excluded because of literal dangers of experiencing the outdoors and nature. When in fact, culturally, our ancestors have had these ties to the land for generations, since the beginning. We grew our own food, went out and discovered remedies for illnesses with natural plants. There's this weird dichotomy in the sense where, you know, as much as we are tied to the land ancestrally -- black, brown, and indigenous people -- participating in nature in our current world when it comes to, you know, science and solutions for change, has been challenging because of that history that we have.

I think what suffers when, you know, ecology stays siloed within academia is that the application of what we learn about these drivers of change, especially human's influences, won't really exist. So, you know, when we gather the evidence that reveal correlations and associations of human behaviors, and say negative or positive ecological changes, you know, we can then quickly act to come up with solutions if we can tie it back to our influence on what's driving changes to the environment.

SP: I would definitely agree with that. And the thing that I notice, I think that across demographics of scientists, there are these conversations starting about like, you know, how do we make sense of our budding awareness that the world is actually really uneven and power is

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really unevenly distributed? Also simultaneously we're very curious about, and nervous about, this process of climate change. And the union of those two anxieties and the union of those two awarenesses is like, is this grand problem! And I think, again, a thing that is related to, sort of, the design of our society.

Like Andy was saying, when we make this connection between our actions -- or like our societal processes -- and then like these, ecological physical outcomes, we're like, oh, we can, we can move towards solutions. But if the people who are sort of in the driver's seat of science are really not asking those questions because they are personally unaware, I mean like deeply -- because of their life experience, because of the people that they associate, because of the communities in which they exist -- do not feel the urgency - or even know to begin with what questions need to be asked. Those questions don't rise to the surface and they don't drive the kind of direction of our disciplines.

There's so many things to say in that direction, but I think the demographics among, you know, leading scientists really tell you everything you need to know about who is driving the questions and how those questions are being received by the wider world. And that really sets the priorities, I think, for what we describe as climate solutions, which have by and large -- as far as the IPCC reports have been concerned and other federal reports have been concerned -- are really technocratic. We're just going to solve these problems with all of these solutions that involve carbon sequestration, geoengineering, and reforestation. And it's like, yes, great, we are aware that like physically, those are, you know, reasonable technical solutions, but none of those solutions are rooted in the actual, fundamental drivers that brought us to this position in the first place. Right? Like we're going to continue to behave societally the same exact way while deploying these solutions. So, I think policymakers and scientists really don't represent the people who are, who are suffering the most. And that's part of the problem.

AP: I think you brought up a great point, Suzanne. The conversation needs to be centered on not only who's driving the science, but also who's driving these ecological changes and this climate change, right?

Let's talk about the 1%, let's talk about the rest of the world. When policymakers or, you know, scientists talk about, we, you know, who is 'we'? That is really making these impacts on, you know, on the world and having honest conversations about that. And, and I think you can really start to determine, okay, so, if you have these companies that are really contributing to pollution or, a bad air quality, or just negative environmental consequences, you know, how much does that cost? And if you can afford it, how much will it take to repair that? Because you know, you have all these other people and communities and the world who, yeah, 99% of them, of the world, are not emitting as much carbon as certain companies and people in the world. So let's have a real honest conversation of equity and what that justice looks like at the end of the day.

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SP: We have gotten to the point where on the internet, you will see like an identification of the company, you know, a handful of companies that are responsible for like some inordinate amount of like gigatons of carbon in the atmosphere, and normal people are actually, like, day-to-day not responsible for the lion's share of the emissions, right. And even less so when it comes to comparing developed and developing countries, I'm using heavy air quotes. I want to just push it a little bit further and say when I mentioned that, like this, this kind of area of critical ecology is developing to address these types of questions one place I want to take it further in doing that is asking, well, what are the systems that facilitated those companies to come to the sort of economic dominance? And, who are the people and who are the sort of, you know, what are the legacies of the populations that not only, you know, run these companies, but are all shareholders in these companies and have vested interests in, in the stability of these companies, right?

Like there is a status quo that has come about as a result of, as a result of capitalism and how capitalism emerged in this particular American context, and the particular history of the United States is a necessary backdrop for understanding.

AP: You know, I would say, how we can understand the impact of climate change on the migration and behavior of trees and forest is in general, you know, in general plants have shown this great resilience and ability to adapt or acclimate to different types of environments that they're exposed to.

So, you know, it's really important to get a grasp at these diverse responses that plants can have to compensate for these changes. As a plant ecophysiologicalist, that means, you know, looking at how abiotic factors such as temperature, changes in temperature, light, precipitation can actually affect the plants physiology, uh, like their photosynthesis and the respiration, their water, transport, and use. Being able to understand basically how a plant works under many, many different types of environmental conditions can really give us some insight into a plant's ability to be adaptable, and you know, how communities in general may differ over time.

SP: I've literally been told as a student that if I were to ask questions about the relationships between corporate activities and, and making an empirical relationship to patterns in, in tree physiology, for example that I'm in the wrong department, that I should be in social sciences. That lack of willingness to see the relationship there, and to actually believe that we have the kind of quantitative tools to make those relationships clear is willful and is socially constructed. So that's my hot take.

AP: I think that's a great hot take. And I think that it's very true. It's like, you know, going into this science, and recognizing, you know, what Suzanne has done with the critical ecology lab, you know, that wasn't even in my paradigm, you know, when I first started studying this science. Trying to link economics or historical, cultural behaviors, and their impacts on something like,

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you know, plant physiology was not even thought of in my purview at the time. And so, this new way of thinking and this new science with this new effort to really go back and understand, like the why's, why are trees migrating? Okay, you know, the climate's changing, well, how is the climate changing? Who is doing the climate changing? And why? In that regard, what's the system behind it? That's like, so many levels out that it's important to really start to ask those questions if we want to stop doing the same thing over and over again.

You know a lot of evidence has found patterns of different types of tree migrations. You know, plants can either extend their range, contract their range or generally move either northward or in any other Cardinal direction. With temperature changes generally we see general migration northward for some species, that is one mechanism, or one way that trees can try to adapt to a changing climate.

SP: When we're talking about migration, we're really saying, like where is the environment suitable enough that when that tree reproduces it will have its seeds go to a place where that tree can then grow and succeed? And when Angie is talking about, you know, northward or high elevation movement, it's just like, the parent tree is still down there so its offspring are not going to thrive where that parent tree was anymore because it's too hot. So we're talking about, you know, where will we see that population kind of survive next? And that's kind of shifting with climate change.

AP: Trees are amazing, that's why I love them. We talked about tree migration through seed dispersal, but you know, trees can move and respond to the environment in different ways and even within a single tree. For example, if you're driving through the Midwest, through a field of sunflowers, you could see that when the sun rises, the face of a sunflower starts to face that way towards the light. And through the day the actual face of the sunflower starts tracking that sunlight, from east to west, so plants can move and respond to different types of stimuli.

The lands that are truly wild and unmarked by human presence, are few and far between at this point in time on our earth. So to say that the end of the wild is near might be a moot point. Plant communities and green spaces, you know, have been changing over time. Just the presence of our human existence in and of itself has always impacted, you know, these ecosystems.

SP: What is wilderness? What do we think is wilderness? Who thinks and who gets to define wilderness? And like, you know, what does it really have to do with the actual quality of an ecosystem? Does it have more to do with what we feel about that ecosystem? And what we've done there?

I, for many reasons, just don't really think about, or don't accept this idea of making something more wild or like 'rewilding' is like a term that gets used a lot. And I understand the desire to kind of repair ecosystems that have been harmed by human activity. When we're talking about

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wilderness it's really what we're saying is like landscapes that have been under various degrees of colonization. That's literally all it is. It's like something was wild until someone came or someone's plural came and decided, you know, ascribed value to the resources in front of them and ascribed value to the people that were already there. And as Angie said, most landscapes have experienced people at some time.

The question is how heavy those people chose to live on the land. Like, what was their culture, were they moving lightly and in the right relationship with the land or were they living extractively? And the answer to like, dealing with this question of 'where is the Wilderness?' is literally the result of living heavily, and therefore, extractively and really subjecting the landscape to capitalism

What we're doing now is: can we maintain the imaginary of wilderness that was produced for us upon, you know, entry and seizure of this continent?

AP: When you're talking about how to manage land, you know, that's where the conversation can be influenced and change, depending on who's talking about it. You know, how can we make it healthy for who? Because if it excludes communities that aren't able to benefit from these conservation efforts or land management, then now we're talking about equity and talking about justice and things like that.

SP: We know, biophysically, what repair looks like. We know evolutionarily, what is happening and functionally what is happening and like, that's all fine and good. We can understand, you know, to our teeth, but it's really inconsequential when we continue to maintain the same power structures and systems and choose to remain in willful ignorance about the way that land management has transitioned as a result of expropriation of land from the indigenous peoples of north America and south America.

To me, repair of that relationship starts with who leads, who has access, and land back. That's it.

[music interlude]

DV: *"The Last Stand"* runs from Thursdays to Sundays starting at 8am through 6pm from September 18 – October 10, 2021 in Brooklyn's Prospect Park. Creative Time projects are free and open to the public. No tickets or advance registration is required. Visit creativetime.org for more information.

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This podcast series is produced by Patrick Smith. The music in this podcast is an excerpt from *The Last Stand* by Kamala Sankaram.