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DIALOGUE

Can political ecology be decolonised? A dialogue with Paul Robbins

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Abstract

In the intricate tapestry of environmental discourse, the field of political ecology emerges as a powerful lens through which we scrutinise the interplay of power, nature and society. This paper stages a dialogue with Paul Robbins to examine environmental justice, the decolonisation of political ecology, colonialism, sovereignty, climate change and capitalism. The dialogue challenges the conventional narratives of sovereignty and underscores the imperative of genuine decolonisation—beyond metaphorical interpretations—calling for the restitution of land and authority to Indigenous Peoples and other historically marginalised communities. The dialogue highlights the importance of moving away from capitalist systems that exacerbate environmental degradation. The dialogue calls for decolonising political ecology by including diverse perspectives, methodologies and ontologies and underlines the importance of control over productive resources. It emphasises that addressing the impacts of colonialism requires recognising and honouring the sovereignty of Indigenous Peoples and suggests that political ecology can contribute to decolonisation by focusing on sovereignty and supporting legal and institutional frameworks that empower marginalised communities. The paper discusses the way forward and the future trajectory of political ecology by suggesting that future research in political ecology should focus on diverse economies, embrace emerging technologies and rework academic institutions to value knowledge co-production.

KEYWORDS

capitalism, climate change, decolonising, justice, political ecology, sovereignty

1 | INTRODUCTION

> Now political ecology is everywhere, and it's hard to think without it, but...we forget what a huge change it meant for scholars, activists, agencies, and critics of bourgeois policy...We had swallowed an 'everything pill' and jumped down a rabbit hole...Climate change is going to move everything around. How do you move sovereignty?...Decolonisation means actually giving land back.
>
> Paul Robbins, December 4, 2023

Political ecology examines how social, economic and political factors intersect with environmental issues and recognises that environmental problems are not isolated from broader social contexts but are deeply entwined with and in fact a by-product of power dynamics, structural factors, and historical processes. In recent years, there has been an increasing focus on how neo-colonialism and capitalism drive environmental destruction and inequalities. In the dance of capitalism, inequality becomes a necessary partner, and political ecology unveils its choreography.

This paper sets up a dialogue between Ishfaq Hussain Malik and Paul Robbins. Ishfaq is a postdoctoral research fellow in the School of Geography, University of Leeds, United Kingdom, focusing on political ecology and climate change. Paul is the dean of the Nelson Institute for Environmental Studies at the University of Wisconsin-Madison, United States, focusing on political ecology, environmental justice and conservation conflicts. This dialogue discusses a wide array of topics within political ecology, including its theoretical underpinnings, decolonisation, sovereignty, environmental justice, colonialism, current trends in environmental policy, climate change, global capitalism, neoliberalism and the future scenario.

This dialogue explores how political ecology offers a perspective for comprehending the dynamics among politics, ecology and society. It encourages us to challenge the basis of inequality and the appalling circumstances that often make it appear inevitable, inherent and unquestionable. It highlights how political ecology aids in understanding the reasons and mechanisms behind the generation of the 'inequality-engine' and reveals the exploitative mechanisms inherent in capitalist systems. The dialogue discusses the concept of sovereignty concerning climate change and environmental justice, emphasising the nexus between sovereignty and decolonial discourse. It delves into the importance of decolonising political ecology and valuing Indigenous knowledge systems in environmental policy-making, stressing the significance of sovereignty and self-determination. The dialogue touches upon the role of emerging technologies and the direction of future research in political ecology.

A pivotal point of contention is the concept of decolonisation, which transcends metaphorical gestures. This dialogue explores what true decolonisation means, how this could be done and how sovereignty is important for empowerment and control over productive resources. It examines how the impacts of colonialism need to be addressed and uses the example of wildlife management in Wisconsin to illustrate how decisions made without consulting Indigenous authorities represent a form of recolonisation. It analyses how political ecology can contribute to decolonisation and in what ways it can be achieved.

Political ecology has faced criticism for perpetuating colonial ideologies and privileging Western-centric knowledge production (Collins et al., 2021; Loftus, 2019). This prompts a fundamental question: Can political ecology be decolonised? To decolonise political ecology, it is important to bridge decolonial theory with political ecology and integrate decolonised research practices within environmental and social science research (Schulz, 2017; Zanotti et al., 2020). This necessitates engaging marginalised epistemologies, including those rooted in feminism and decolonial theories, as a means to advance the field and a deeper scrutiny of Eurocentric and colonial knowledge production (Loftus, 2019; Sultana, 2021). To further advance this, there is a need for a more engaged and inclusive approach, and a shift towards radical advocacy in political ecology scholarship and an approach informed by antiracist, postcolonial and Indigenous theory (Desvallées et al., 2022; Heynen, 2016). These perspectives collectively underscore the potential for decolonising political ecology, particularly in terms of knowledge production, and emphasise the necessity for a consistent framework capable of analysing political, cultural and ecological matters.

This dialogue explains why there is a need for decolonising political ecology, rethinking sovereignty and engaging marginalised communities in decision-making. To address colonial legacies, it is crucial to foster collaboration and dialogue between different knowledge systems and value Indigenous and local environmental knowledge. By incorporating these alternative knowledge systems and diverse ontologies, political ecology can embrace a more inclusive approach to promote a deeper and holistic understanding of environmental issues. This would require transcending the power dynamics inherent in traditional research practice and co-producing knowledge with communities that actively participate in research. Community-first research, putting community aspirations, knowledge and questions at the core of research design, implementation and dissemination, challenges the hegemony of the academy and fosters more equitable knowledge co-production.

2 | DIALOGUE

Ishfaq Malik (IM): How would you define political ecology, its key concepts and how does it contribute to understanding the interplay between politics and the environment, and why is it important?

Paul Robbins (PR): Political ecology is the business of recording, writing about and explaining the deep, structural factors that drive the terrifying environmental changes we see all around us. It was Piers Blaikie[1] who forced me and my colleagues at Clark University to think about it in the early 1990s. He had started applying political ecology in South Asia and made us realise that it is critical to understand the underlying drivers—the engine—behind changes around us: soil loss, deforestation, biodiversity decline, water degradation and so on. It is that critical lens that does not just examine the proximate changes but also what causes them. If we want to have any hope of reversing these trends, it is important to find out how exploitation occurs and how the capitalist economy works to seize, metabolise and transform the land. That makes political ecology[2] very important, but also rather difficult. Observers needed not only a grasp of physical systems (groundwater flow, rates of soil erosion, fire ecology and so on) but also the logics of capitalist accumulation (labour dynamics, investment strategies, rates of return on capital outlay, etc.). Quickly, however, the approach became ubiquitous. In a few short years, it became impossible to talk about drought, for example, which previously would have been understood as a 'natural disaster', without thinking about the risks imposed by colonial taxes, seed markets, property rights, development discourse, tree tenure, funding for crop science and the gendered division of household labour. That's a huge change. A generation of people were suddenly cross trained to do everything, sometimes well and sometimes less well. Now political ecology is everywhere, and it's hard to think without it, but we forget what a huge change it meant for scholars, activists, agencies and critics of bourgeois policy. Training in this field meant reading volumes not only on restoration ecology, steam hydrology, crop yields and invasive species, sure, but also the works of Boserup (1981), Kautsky (1902), Ostrom (1990), and later Donna Haraway (1987) and Bruno Latour (1993). We had swallowed an 'everything pill' and jumped down a rabbit hole.

IM: How can political ecology shed light on the power dynamics and inequalities underlying environmental issues, such as access to natural resources or environmental degradation in vulnerable communities?

PR: I would go the other way around. Anytime you are asking questions about environmental interventions or management, you're thinking about inequality and marginalisation, and so you are thinking about political ecology. So how can it be such an odd question? Once you're already asking these questions, you're sort of doing political ecology, it seems to me. I think what's useful about many of the theories and concepts associated with political ecology (think: common property institutions, capitalist accumulation, patriarchy, etc.) is that they go beyond simply identifying inequality. It's not difficult to find inequality. Inequality is everywhere. The income gap, even in this country, the United States, a very wealthy country, is so large that the gap between the wealthy and the poor has become almost unimaginable. So, it's not hard to find inequality. I think what political ecology still provides is a set of theories to explain why there is an engine that produces inequality and that needs inequality to thrive; inequality is a feature, not a bug, a necessary condition, not an accidental outcome. It's essential to track and consider the implications of the fact that large sections of the global population have been robbed of control over productive resources, and why. Because if they retained or seized control of those resources, they could walk right away from capitalism; they would actually have the means to produce and reproduce economic conditions regionally and locally. So that's different than simply identifying inequality and saying we should try to solve it somehow. That's sort of liberal; broadly defined liberal thinking that does as much harm as good because what you are hoping is that you can just redistribute stuff. That doesn't get to the driving engine that produces the outcome and will do it all over again, given half a chance. And the engine that produces inequality is the same one that produces all these tragic externalities, that dumps all that carbon in the atmosphere and that overmines the productive resources of places like Congo Appalachia, and the Big Reservation of the Dine,[3] Hopi[4] and Zuni[5] peoples. Those things are linked: the absence of control over productive resources produces inequality and environmental degradation. And that is where political ecology, for all its incoherence, is still useful. It points to explanations of why we have these outcomes, not just that we have them. So, I think that remains really critical. And in an era when it's very common to say, well, we should 'decolonize', which I think is entirely right, it tells us just the scale of the ask. What does that actually mean, if you take it seriously? It actually means surrendering the productive resources—the means of production—over which global capital now extends its reach to all parts of the globe. So, it isn't simply about acknowledging some historic exploitation between settlers here and the land that they seized from Indigenous populations through genocide and broken treaties, or what the British did in India. It certainly means at least that. We can talk about decolonization in that sense. But in the end, it's a struggle over production. And that, it seems to me, is political ecology's big reminder. And that means the production of things, stuff and also the production, which I think a lot of people have forgotten in recent decades, of discourses, the stories about which we receive the world, and the conditions that produce the truth. This is not something that people look at as much anymore. In political ecology, it was very big in the 1990s and 2000s. To think about what produces a taken-for-granted understanding of the world, whatever you call that discourse, ideology or communication, I don't know, whatever you want to call it. That 'soft' stuff is actually really hard. Those truths are also produced by the

same economic equipment, spun out by the same structures. And until you wrest these from hegemonic control, you haven't solved the problem. So political ecology is still useful, not because it points to injustice. That's great. But because it takes it, it asks us to do more, which is to explain inequality and the horrific conditions that make it seem so inevitable, natural and uncontroversial.

IM: The process of decolonizing political ecology aims to address historical injustices and the impacts of colonialism on environmental and social relationships. What are your thoughts on decolonizing political ecology and the question of sovereignty?

PR: Tuck and Yang (2012) make it pretty clear that you shouldn't even use the word decolonization[6] unless you mean it, which means actually giving land back. So, where I work in the upper Great Lakes, there are 12 sovereign native nations, each with their own national government, all here within the confines of the state now known as Wisconsin. And they are sovereign. If you were really to decolonize Wisconsin, you would have to turn all the rest of the land back. That's not going to happen. Probably it should. I didn't say it shouldn't, but it's a heavy lift. So, I think decolonization, if we take that critique seriously, is probably not what we are really talking about. We're talking about wrestling with the conditions that were produced by colonisation and attempting to recognise the sovereignty—the true sovereignty—of historically colonised populations. So again, I'm thinking here of Indigenous populations, and I think that's where this is the most appropriate conversation. What decolonization means in South Asia is, I think, somewhat different. But in the North American context, what it means is that historically colonised populations have sovereign control, land rights and decision-making power over the environments that existing treaties allow, indeed: demand. So, I'll give you a specific example. We have wolves coming back to Wisconsin for the first time in a century, moving into the northern part of the state, which a lot of people, of course, think is a great outcome, but many people don't. And that, of course, is a political struggle over whether they should be hunted or what their numbers should be, or sort of a 'normal' political ecology problem. The thing is, according to the law here in the United States, the Ojibwe tribes have management consultative authority over about one-third of the state. That includes land—a lot of land, maybe a third of the state or more—outside Ojibwe reservations. Actually, according to the Voigt Decision (1983), a legal decision from 1983 stating that the 1854 treaty did not end Ojibwe rights to hunt and fish on the territory they ceded, rather: it enshrined them. You can't choose to hunt wolves or pick the number of wolves in the state without consulting with the Great Lakes Indian Fish and Wildlife Commission. And yet, when the time came to actually set up a wolf hunt in this state, which was done, they were not consulted (Gilbert et al., 2022). Nobody asked them. That is colonisation. In that moment, settlers recolonised the Ojibwe[7] all over again, just like that, by setting a threshold, a number, ostensibly using the science of 'ecology', but really doing no such thing, in a non-consultative process. So, decolonisation, or addressing colonisation—let's not call it decolonisation; in decolonisation, we just give the land back, right? Addressing colonisation means surrendering sovereign authority to the colonised, and the US government is apparently not yet prepared to do that. Fortunately, I think treaty rights in this country have the potential to be very strong. They were signed by the federal government. So, there are legal instruments available that could make it happen. And that's not unique. So, in the South Asian context, I think India's Forest Rights Act (FRA) (2006) is so potentially powerful. There's a reason that the Indian Forest Department was terrified of the FRA. Now, I bet they're not especially scared anymore since nobody's exercised its authority. Decolonization, or addressing the history of colonialism, would be to allow the FRA to ascend, to really bite into land management authority by giving forests and dwelling populations sovereignty. That's the magic word. So instead of talking, when you say the word colonisation or decolonisation, for me, the flip of that word is sovereignty. And if you don't, if you're not addressing sovereignty, you're not really decolonizing; you're just talking. So that's my feeling about that. I have a lot more to say.

IM: In political ecology, power dynamics play a crucial role in shaping environmental decision-making. How can we create more inclusive and equitable processes to involve marginalised communities in environmental governance?

PR: I think it comes back to honouring sovereignty; that's really the history of development; we don't call it that anymore. Nobody even talks about development. We don't even have development studies anymore, but it still goes on. What we used to call development, which we now call investment or whatever, is development. And, regrettably, without some critical attention, it is still essentially an effort to destroy the sovereignty of communities. Development is, we'll make things 'better', and in the process, you actually lose control over the productive resources that allow you to reproduce your lives. Now, what's so amazing is that the majority of food in the world today is still produced by people on their own land.[8] It is amazing that it is still true because 'development' has done everything in its power to eliminate that reality. So, it seems to me that taking seriously the decision-making capacity of those communities means honouring sovereignty,[9] that they have land rights and that they can and should exercise those rights. So, it seems to me that political ecology in part is about finding the existing structural conditions that allow people to assert their rights and then getting out of their way. Making sure they are connected to those legal resources, those institutional resources, the ability to act collectively,

forming unions, for example, where all people own is their own labour, I mean that area. That strikes me as what political ecology should be doing. Political ecologists can critique the development process all they want, but if they are not working with communities on their own aspirations for control of their lives, then they're not investing their time wisely. So, I don't know, how can scholars do that? What's the job of a scholar? So, it seems that the job of the scholar is to reveal, through rigorous analysis, the leverage points in a complex system and make sure that the existing apparatus that can allow people to exercise authority is available to them. So, coming back to India and the Forest Rights Act (2006), the Forest Rights Act (2006) is still on the books. Political ecology's job is to indenture the scholar to the community's aspirations. That's hard because it requires a lot of humility, which scholars don't usually have. Right? So, though my examples increasingly come from this North American context, this same principle certainly applies to South Asian contexts[10] and everywhere else. There is no question.

IM: Environmental degradation is a pressing global concern, intertwined with capitalism and neoliberalism. The relentless pursuit of profit, deregulation and prioritisation of economic growth often result in unsustainable practices and the exploitation of natural resources. Considering this relationship, what are your thoughts on the connections between capitalism, the neoliberal economic system and the ongoing environmental degradation we see today?

PR: That is a good one. It's a big question. Well, if you want the big, big 40,000-foot answer, it seems to me that if we performed a thought experiment where our economic system wasn't one in which capital had to valorise itself, where people who control capital, people who control money, the only way they have to make money is to put it into an economic production system so that they have more money at the end, right? Where M goes into C, and M prime comes out. And M prime has to be bigger than M. And if that is how the economic system works, you will always have environmental degradation. Always. Because something must go in to produce that surplus: variable capital. And you can only really squeeze that from labour or nature. If that wasn't how the economy was structured, and instead it was one in which productive capital, land and machinery were in the hands of the people who actually work, where labour itself can meet its own needs from production, then a lot of this surplus goes away and a lot of the need for that surplus, which is driving environmental degradation, externalities and producing all this carbon, goes away, right? So that's one side of it. And the other side is that the technologies that might be available to us to hasten that process, to hasten the transition to a system where everybody's needs are met with less and less impact on the environment, decoupling, right, the economy from the environment, many of those are available to us or are increasingly available to us. And it is remarkable how slowly we are implementing things that are totally available to us. And this is simply because most people can't control the system of production in which they have to labour. Those things are decided by capital, by people who have the money for investment. So, it's pretty clear to me that the problem of the environment is a problem with capitalism. That's not very controversial. It's not very revolutionary to say it. It's not all that interesting. What's more interesting is to say, what would an alternative look like? The good news is, and here I do believe Gibson-Graham (1997, 2008, 2014) is correct. Gibson-Graham and the enormous Community Economies network of scholars, citizens and activists have convincingly shown that there are lots of things that aren't capitalism, all around us, all the time. There are all kinds of already existing alternatives, all kinds of community-based economies that operate on logics that do not look like what I just described, where surplus is the necessary goal of the system. And they exist all around us. So, another thing that political ecologists should do is find, celebrate, invent and cooperate with actually existing alternatives. And there's lots of these, right? 'The Handbook of Diverse Economies' (2020), edited by J.K. Gibson-Graham and Kelly Dombroski, is a good example. We are talking about 500 pages of examples of community economies that do not follow the same logic of capital. Similarly, Kothari and Joy (2017) in 'Alternative Futures: India Unshackled' do much the same for the Indian context, showing how energy, housing and schools can be reconfigured by and for communities. And in each of these, even where they are not explicitly environmental projects, there is the operation of a different kind of ecological logic that produces a very different kind of stream of externalities. And therefore, in both theory and practice, there is often far less coupling between economic prosperity and environmental degradation. Right now, economic prosperity and environmental degradation are very closely linked, which is a disaster. We've got to have economic prosperity. Working people have every right to expect dignity, resources and a full and rich life, and in the twenty-first century, that minimally includes electricity. There are currently 800 million people in Africa who do not have electricity. You want to talk about colonialism? That's insane in this day and age. How did that happen? Well, colonialism and capitalism—violence. It's totally ridiculous if you consider how people live in this country, but that is the case. So, what kind of electric cooperatives—in other words, prosperity-generated technologies, and economies—are going to turn the lights on in Africa in ways that are just and controlled by local communities? They can't be capitalists if that's going to be the case. They need to be something else, but they're going to be an economic solution. It will be an economy. And I don't see it as something where you can just say, well, people don't need electricity. It's not up to you to say. So having the space for people to meet their aspirations

means coming up with economic solutions that follow new economic logics. And often, those are diverse, alternative economies. And I think there are lots of those. And we have examples of them, even in the United States, 'the home of capitalism'. There are a lot of interesting experiments in cooperatives and other kinds of communitarian productive relationships that can control and distribute energy and power. And new technologies like microgrid technologies and small-scale nuclear power—I mean, there are all kinds of interesting things that, if you put them to work on your own terms as a sovereign locality, you might be able to produce economic prosperity without the same kind of degradation. It largely means inventing some kind of new economy, but that's possible. It's totally doable. It's a practical problem. It's happening all around us. It's not a revolutionary idea.

IM: Environmental justice is a fundamental aspect of political ecology. How can we ensure that marginalised communities disproportionately affected by environmental degradation have equitable access to environmental justice and are part of decision-making processes?

PR: Environmental injustice is a product of the absence of control that communities have over productive resources. It all goes back to the beginning of this. The reason lead wound up in the water in Flint, Michigan, is that somebody switched the water source to a corrosive water source and ran it through archaic lead pipes. That decision was not even made by an elected official in Flint. It was made by someone assigned their position through a brutal restructuring process of the municipal economy. Somebody who was a CEO was put in charge of the city. It was non-democratic. The lead pipes themselves were put in place 100 years ago by people without any control over the development strategy, left to languish by people who didn't have to live there, and the communities ended up drinking the water. So, there is a classic case of environmental injustice, as all of that lead ended up in poor, young, largely African American bodies and communities in Flint, Michigan.[11] How did that happen? It is a series of examples where the community was not allowed control over the deliberative decision-making of how the infrastructure would be laid out, what the water source would be and control over the productive resources. So environmental injustice is a symptom—an inevitable symptom—of that political problem. And it will keep happening over and over and over again. So, we talk about environmental justice; we seek environmental justice. What we really are talking about is control over decision-making and control over the economy. And that, you know, is very hard to come by in North America anyway, or certainly in the United States. So, I mean, that's the simple answer: Environmental injustice is what all these systems always produce. It's just like environmental externalities and environmental injustice are absolutely necessary to capitalist accumulation. They don't go away just because you don't think they are good, and you know they are unfair. You actually have to surrender control over resources or seize them, take them from the people who own them and give them to communities. And it's only then that you're going to have more just solutions. You can't wait for the current hegemons, no matter how well-meaning they are, to make decisions that are just.

IM: Climate change is a paramount global challenge of our time, with far-reaching implications for ecosystems, economies and human societies worldwide. How can political ecology contribute to addressing climate change mitigation and adaptation strategies?

PR: Those are two different things. It seems to me that the political ecology of mitigation is largely a political ecology of energy, infrastructure, transportation, whatever systems produce greenhouse gases. So political ecology should take a very close look at how production works. So, consider the excellent work of Matt Huber (2017) on nitrogen, for example. What he did there was engage in extremely challenging work as a political ecologist to understand how the nitrogen production system and the fertiliser economy basically work. Who owns it? How is it produced? What generates all of that energy, what becomes of the products of that energy and who exercises control over the decision-making from one end to the other? That's a political ecology of mitigation because it is a deep, deep x-ray of the economics of how the system works. If you don't understand that, you can't reassemble it. Or if you look at the agricultural system in the work of Julie Guthman (2022), Guthman and Butler, (2023) she shows that there are actually very few options for producing certain kinds of agricultural products in North America that don't involve all these externalities. You have to actually look at all the steps, the length of the supply chain and the dynamics of its operations. So, a political ecology of climate mitigation is a rigorous examination of the economics of production, energy production in particular, but not only energy production, transportation, infrastructure and all that. You have to understand how those things work so that you can produce alternatives that embrace technologies that are less violently contributing to climate change. So, it isn't just a question of installing a bunch of solar panels. I mean, those solar panels themselves have this really long supply chain with all kinds of exploited labour and environmental degradation underneath them. Solar energy is filthy,[12] but that doesn't mean we don't want it. We can't not want it. It just means that it's very easy to say that we want solar power. That's the liberal answer. And as such, we don't worry about the fact that you're taking control over the productive resources, the health, the life outcomes and the environmental conditions of people living far away. If you actually did a political ecology of that supply

chain, you would be able to reveal the sites where, if people were exercising sovereignty, the bargain over how to produce a solar alternative outcome would look very different than it does in the solar outlay that we have now. So that's on the mitigation side. It seems to me that political ecologists need to do a lot of work, really taking apart how the economy really works. And there are some great examples of this. I would strongly recommend the work of Dustin Mulvaney (2017, 2019). He is an American scholar who works on solar power and energy transition, but he especially examines how the siting process works. Where can you actually cite solar energy in this country? And on whose land? And with what authority from local communities? How do you cite these things? And how do you come up with a political bargain or trade-off that looks democratic? That seems to me to be a political ecology of mitigation. A political ecology of adaptation is different because adaptation[13] has to assume change, so you're not trying to forestall change; you're trying to live with it. And that can really look like very unpolitical ecology. As in, 'right, well, now you all have to move. We'll build you a place to live somewhere'. That's very developmentalist, and in the worst way. And in the end, it has absolutely nothing to do with local communities. So, a political ecology of adaptation first must carefully critique how many adaptation schemes are really violent recapitulations of the capitalist conditions that produced the problem in the first place. We're very good at that. I think political ecology is revealing but contradictory; that kind of contradictory recapitulation, that re-inscription of the exact thing that caused the problem, that the solution is the problem all over again, is a very normal narrative in political ecology. So, what does a more emancipatory version of climate adaptation look like? I think it's about trying to listen to and work with communities to understand what they want and what their aspirations are, and how, under changing climate conditions, those things can be met and how they can exert control over their decision-making during a process of change. Even if that does mean someone has to move (or wants to move), or even if it does mean that they have to build infrastructure that keeps the water out, what's missing often when we talk about adaptation is that first moment, which is consulting, the consultative process of understanding what local communities want, what they aspire to, which may have nothing to do with climate change, may have to do with, you know, aspirations for their own kids' education, or for a particular kind of job, or convivial conditions for the community to live together. If those are the things that need to be elevated first, then you can go back and say, well, here's what precipitation and temperature look like. Concede a community's vision of and control over the future, and then provide meaningful projections of the contexts within which this will be exercised. So, the most productive way of thinking about climate adaptation is to start with community aspirations. You don't come in and say, well, your community is going to be underwater; now it has to move. You ask, what are a community's economic, political, social and personal aspirations, and what are the implications of the change that is, at this point, inevitable (we need to accept at least two degrees of warming on the planet)? It's an interesting problem. There may be resources or contexts—I hate to say it—situations in some places where climate change provides or produces resource *opportunities* for communities. We should look for those too, because there will be places where having more water, as awful as it is, is far better than having less water. And thinking about how to capture those resources and how to yield a productive outcome requires that a sovereign community make decisions. Okay, there's going to be more water. What do you want to do with it? As opposed to a kind of master technological vision, which is that there's more water over here than there's less over here, we'll pick this water up and put it here. That, of course, is a re-inscription of colonialism, as opposed to empowering the sovereign decision-making of people who live in those places. Now, it may be that far-flung communities come to terms with one another, that there's a political adjudication of differences and that somebody has something that somebody else wants, and so they reach an understanding. I mean, that's political economy. Either way, we would have to know a great deal more about what communities at either end actually want. Climate adaptation is problematic that way, because often observers start with the problem rather than the aspiration.

One of the bigger puzzles is also sort of territorial; it has a political geography to it. In the context of the United States, for example, rights are geographically circumscribed. As a result, we think of the sovereignty of Indigenous people as being place-based. You're from here; you live here; your tribe was here; this is your 'reservation'. You are sovereign here, but not over here. In fact, of course, these folks 'here' were often displaced from way over 'there', and one community has, at some point, offered to host another, and so on. These geographies have long, dynamic histories and are by no means timeless or stable; they are a product of bloody, violent displacements. And now climate change[14] produces this problem again: a series of displacements. How do you mobilise sovereignty, historically tied to territory, for communities amidst displacement? It's like a huge puzzle; it's like the biggest puzzle of the twenty-first century. Climate change is going to move everything around—physically move things around. How do you move sovereignty? How do you exert territory and authority in places where you have been and where you've been displaced? I don't even have a pretend answer for that. But that's what we've got to think about, because a lot of people are not going to be able to stay where they are.

IM: Indigenous knowledge plays a crucial role in promoting socio-economic and environmental sustainability. How can political ecology effectively use and value Indigenous knowledge systems in environmental policymaking?

PR: It seems to me that what constitutes Indigenous knowledge and whether it is relevant is entirely up to the communities from which that knowledge emanates. So, I come back to this problem of how you integrate Indigenous knowledge into decision-making, especially where there's lots of new technology. So, there's a really interesting case from New Zealand of how conservation genetics was mobilised by Indigenous Māori populations.[15] Using their own knowledge of the species that live in and around them, they were able to integrate their own categories of the world and their own ontologies with technologies to preserve and protect Indigenous biodiversity using cutting-edge technology, such as banking genes. The first step is always to surrender authority to that population. How and whether they choose to deploy their understanding of the world is up to them, and whether they choose to integrate it with emerging technologies is a choice sovereign people can make. The last thing you want—I guess what I'm saying—is to box somebody in because of their Indigenous knowledge. To say, well, this isn't part of your Indigenous knowledge, so it's not yours. That's a problem. This is what constitutes your Indigenous knowledge, and this doesn't. And you have to stick with your Indigenous knowledge. Those are the three colonial habits that you need to avoid when you're exercising and validating traditional ecological knowledge. The first step is just to let people control what they want to do. People can draw on their knowledge systems to make decisions, or not, and integrate these as they see fit with knowledge systems that may or may not be 'Indigenous' but may be from other knowledge communities or diverse epistemologies. None of these things reconcile, especially easily. I don't think that there is any single epistemological solution to any of these problems. There's going to be competing ways of knowing and always adjudicating these problems. But if you start with the community's rights, honour their Indigenous knowledge as valid, allow it to be exercised or not exercised as they see fit and make available to them the suite of other epistemologies, technologies and ideas that may or may not integrate with their own, then you open a conversation. Then you've got the ability to sort of creatively embrace all kinds of innovation while honouring what people understand to be true about the world on their own terms. So again, the trap is that Indigenous knowledge is the thing you're trying to protect, preserve or validate. What you're trying to protect, preserve and validate is the sovereignty, rights, honour and justice of the community. If people exercise their Indigenous knowledge, that's up to them. So, I think one of the biggest problems and debates in the 1990s and 2000s, which were unproductive, was trying to define what Indigenous knowledge is and, in a sense, say what good knowledge is. And there is no way to sort that out. Knowledge is too supple. It's too interlaced. There are lots of different forms of knowledge. They evolve over time in tension with one another. Political ecologists can't sort that out. What political ecologists can do is take a very hard look at how Indigenous knowledge has been erased or marginalised and help produce the political conditions in which it can be mobilised, used and validated or not based on the autonomy of the actual community from which that knowledge comes. So, power comes first. Power comes first; knowledge follows. Right? Because if you validate somebody's knowledge and don't allow them any power (or really, to do the former to assure the latter), that's what museums were all about for hundreds of years. A most terrible act of violence indeed.

IM: What advice do you have for students or researchers interested in getting involved in the field of political ecology? Are there any emerging topics or areas that you think deserve further exploration?

PR: Yeah, that's a good question. I think the most interesting questions are related to technology. I think they hang over everything we just talked about. The political engine of accumulation, the question of colonisation, sovereignty—all those tools out of political ecology don't change. Hang on to all of those. But I think there is a real lack of work in political ecology that takes seriously where technology is going. And I think that's because, to be fair, political ecology has always been a critical discourse, which means when it sees a technology, the natural reaction is to show how that technology reproduces exploitation, colonisation and accumulation, right? In other words, to critique technology. To be sure, there's a crucial place for that. Even a casual examination of agricultural genetic innovation reveals how congruent the innovation choices have been with securing property rights over the reproductive capacity of crops. There's a lot to critique. But that has not made the technology go away, nor has it made us think seriously about how it might be harnessed for other kinds of radical or progressive purposes. I can well imagine ways in which cutting-edge technologies could be used by sovereign native nations here in the North American context to control their own productive resources, for example, genetic resources. When we think about even some kinds of critical work that I don't much care for, like the work of Vandana Shiva (1995, 2005, 2015), they hint at just that. I want to credit the work of Shiva and her followers for recognising that the technology, the knowledge, the generative economic power, the culture and the logic are all contained in the seed itself. And each seed further contains a whole history of farmer knowledge that produces that seed. But why wouldn't you embrace a technological capacity to continue to innovate and control those productive resources, which are the seed, which now means genetic engineering. This is only one crucial, terrifying example. It means technologies that most political ecologists are scared of. The first response of a political ecologist to technology is, I don't like it. And that can't be how we proceed. I think the next generation of political ecologists needs to say, wow, this technology has power.

Now, how do we seize control? How does it connect to the productive resources of capitalism? How can it be decoupled from accumulation? And that includes a whole range of technologies, of course. That's biological systems' technologies, as well, of course, as AI and machine learning, which scare the hell out of me. I don't know about you, but they scare me. But they're not going away. So, the question is, what is their relationship to capital? What are their relationships to movements that are anti-colonial and that can produce sovereignty? Remember, we have tools to combat accumulation, control productive resources and recognise sovereignty in historically colonised populations. This includes labour mobilisation and community economies that exert sovereign collective property rights. How would applying these looks? Cooperative models for creating and maintaining tissue banks? Collectivised development and deployment of algorithms? Communitarian mobilisations of CRISPR tools that modify the DNA of living organisms? Where do these new technologies connect to the alternative economic arrangements we see in the world around us, hidden under the waterline of the market economy? Mapping those potential connections is enormously exciting. That's what the next generation of political ecologists could take on, working with communities to seize control of productive resources. So, I will give you an example. Right now, around the upper Midwest here in the United States, people are banking wildlife genes. State resource agencies, individual scientists, federal wildlife agencies, not for profits, firms... They just are, whether we like it or not. The state's Department of Natural Resources is collecting, harvesting and putting on ice the genes of all kinds of wildlife. University researchers all around this university are doing the same thing. They're not talking to each other. They all have their own laboratories, and they're just dumping genes in there. People are collecting genetic materials for their own scientific purposes, and there's nothing wrong with that. That could be a good thing, right? Lots of people are doing it. Has anybody called the Ojibwe nations, for whom wolves, most poignantly, are kin? Wolves are family to the Ojibwe. You are banking the genes of kin. Nobody's called them. Nobody's asked the question, what is your relationship to this technology? What would an exercise of authority and sovereignty for your nation mean? It might mean throwing a technology away or eschewing it. It might be embracing it in some creative way. It may mean just tracking it or looking at the legal controls that are available to it, but the technology isn't going to go away. What matters is how we connect questions of anti-colonialism, accumulation, control of productive resources and the rights of the marginalised to those technologies. I think that is where everybody's attention should go right now. Biotechnologies, information technologies, robotics and automation, and data science—that is where attention needs to go in political ecology.

IM: What should the future course of political ecology be, and what things should it include to become more relevant and effective in addressing environmental challenges?

PR: I think a concentration on diverse economies is important. It allows people to empower community-based solutions to actual problems, especially urgent problems like climate change, right? I think allowing there to be non-capitalism all around is super important. I think political ecology needs to work with diverse economies. I think that is the solution, which is ultimately Marxian economics, but one rooted in strong feminist notions of autonomy, empowerment and difference. So, I think we should never give up on feminist Marxism.[16] It is still the answer. Okay? So that's one, right? Two, I think the future is in embracing and being flexible with emerging technologies; emerging energy technologies, emerging biotechnologies and emerging information technologies are the future. And the people who are going to be good at political ecology are going to understand those technologies better than I do. I think that's super important. So, diverse economies, feminist Marxism and an embrace of technologies. And I think we need a new model of scholarship. The academy is in part where political ecology comes from; it also comes from activist communities, of course. But to the degree that is the academy that does a lot of political ecology, right now it doesn't do a very good job of honouring a work process where a lot of the problems and answers are driven by communities, co-production, as you called it, of knowledge. It's very hard for tenure committees at universities to understand co-produced knowledge. They're like, 'but whose is it?' Right? They need to know that you invented something so that they can say that you contributed to the world of knowledge so that they can give you tenure and give you a raise so that you can go home and buy groceries. Right? Your ability to buy groceries is dependent on the traditional academy upon taking knowledge away from communities and calling it your own. That's the incentive system. The incentive system is to take other people's stuff. And that doesn't excuse you if you do it (and I have), because you shouldn't, but it does help explain it. And I do think that for political ecology to actually be viable, to the degree that it's happening inside universities or research institutions, we need to revisit that incentive. So, co-production needs to be something we celebrate. You say that half of what you're talking about was actually produced by the community. Great. That's even better. And I don't think we've done a very good job of that. I think political ecologists who work in the academy should struggle to make co-produced knowledge valuable to the academy and make the academy rethink what it values. So those are my three answers. The first answer is theoretical. Feminist Marxism is still the best explanation of the economy, with the most opportunities for reform. The second is substantive. I think we should be thinking

about cutting-edge technologies in a way that we are just not ready for. And the third is institutional. I think we must rework universities so that they are doing this kind of work.

3 | CONCLUSION

Political ecology provides a critical lens through a rich historical background and diverse epistemologies and ontologies to understand the complex relationship between politics, ecology and the environment and recognises that power relations, socioeconomic inequalities and political institutions play a significant role in shaping both the causes and responses to environmental change and justice. Decolonisation is not just about acknowledging historical exploitation but also about surrendering control over productive resources to enable true sovereignty and self-determination for colonised populations. It is important for challenging and dismantling colonial structures, both tangible such as land ownership systems and intangible such as knowledge production, and decolonising political ecology is important in addressing these issues. Traditional notions of sovereignty are challenged as the impacts of climate change transcend national borders and have transnational consequences. Political ecology examines how climate change exacerbates existing inequalities, creates environmental injustice and disproportionately affects vulnerable communities, including marginalised groups and Indigenous populations. It questions the distribution of power and resources in addressing climate change, emphasising the need for equitable solutions that respect local sovereignty and engage various stakeholders in decision-making processes. This dialogue emphasises that true decolonisation necessitates more than lip service and not just limited to acknowledging some historic exploitation—it involves an act of restitution of land and authority and a return of agency to historically colonised communities. Sovereignty becomes the fulcrum, emphasising tangible empowerment and control over productive resources. It emphasises that addressing the impacts of colonialism requires recognising and honouring the sovereignty of Indigenous Peoples. It suggests that political ecology can contribute to decolonisation by focusing on sovereignty and supporting legal and institutional frameworks that empower marginalised communities. Moving forward, in this dialogue, Paul Robbins suggests that political ecology should explore diverse economies and feminist Marxism as frameworks for understanding alternative economic systems that prioritise autonomy, empowerment and difference. Political ecologists should engage with emerging technologies, such as biotechnologies, information technologies and renewable energy systems, to understand their implications for power dynamics, resource control and environmental sustainability, and embrace collaborative and community-based research practices to remain relevant and contribute to more sustainable and equitable societies. Political ecology must actively engage with Indigenous Peoples, local communities and other historically silenced actors as their insights are crucial for addressing environmental challenges effectively.

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CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no data sets were generated or analysed during the current study.

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ENDNOTES

[1] Piers Blaikie's critique of land and resource conservation policy in the Global South was important to the development of political ecology. Blaikie's emphasis on the co-production of environmental knowledge and social values has been influential in reframing environmental analysis and policy towards addressing the needs of vulnerable populations (Blaikie, 1985; Blaikie & Brookfield, 1987).

[2] Further readings: Robbins (2004, 2012, 2019).

[3] The Navajo people call themselves Dine, and the Navajo Nation is the largest Indian reservation in the United States, extending into the states of Utah, Arizona and New Mexico, covering over 27,000 square miles of unparalleled beauty. Diné Bikéyah, or Navajoland, is larger than 10 of the 50 states in America (Navajo Government, 2024).

[4] The Hopi Tribe is a sovereign nation located in north-eastern Arizona. The reservation occupies part of Coconino and Navajo counties, encompasses more than 1.5 million acres and is made up of 12 villages on three mesas (Hopi Government, 2024).

[5] The Zuni people (A'shiwi, meaning the flesh) have lived in the American Southwest for thousands of years. Under the Indian Reorganization Act of 1934, the Zunis decided to hold elections for tribal officials. Their multi-storied homes fitted together perhaps inspired modern-day condominiums (A:shiwi, 2024).

[6] Decolonisation is a political and normative ethic and practice of resistance and intentional undoing of unjust practices, assumptions and institutions. The process involves resistance, unlearning and the creation of alternative knowledge spaces, and challenges dominant Western research frameworks and gives importance to approaches like Indigenous participatory action research to address inequalities (Kessi et al., 2020; Lenette, 2022).

[7] The Ojibwe tribes reserved the right to hunt, fish and gather on lands they sold to the US government in the mid-1800s but faced challenges and conflicts in exercising their treaty rights, and the court decisions that affirmed and protected them (Great Lakes Indian Fish and Wildlife Commission, 2022).

[8] Suggestions for further reading: Patria (2013); Knezevic et al. (2023); Giller et al. (2021).

[9] Further readings: Ruuska et al. (2020); Matthews (2021); French (2001).

[10] Further reading: Malik (2022a, 2022b, 2022c); Jamal et al. (2022); Wani and Malik (2023); Malik and Hashmi (2021, 2022); Springate-Baginski and Blaikie (2013).

[11] The lead contamination crisis in Flint, Michigan disproportionately affected poor, young and largely African American communities. This was a result of systemic failures and racial liberalism, which drove dispossession and contributed to the city's financial duress. The crisis had a significant impact on the perceptions of food and water access among African American women, who faced barriers such as the high cost of water and poor availability of healthy foods (Gostin, 2016; Mayfield et al., 2017; Ranganathan, 2016).

[12] It is important to understand solar colonialism in order to comprehend the power dynamics and social implications of solar infrastructure, the role of solar energy in perpetuating colonialism and its impact on dispossession.

Further readings: Kinder (2021); Stock (2023); De Onís (2018).

[13] Further reading: Malik and Ford (2024).

[14] Further reading: Goldman et al. (2018).

[15] Conservation genetics has been mobilised by Indigenous Maori populations in New Zealand, with a focus on the preservation of genetic diversity and the integration of Maori principles in genomics research. This approach recognises the importance of Indigenous sovereignty and the ethical and equitable use of DNA, particularly in the context of culturally significant species. The involvement of local Maori communities in decision-making and the devolution of harvest administration to a local tribe have been key factors in the success of conservation efforts (Collier-Robinson et al., 2019; Coombes, 2007; Robbins et al., 2023).

[16] Further readings: Elmhirst (2011); Sundberg (2016); Sultana (2014).

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