IGCC | UC INSTITUTE ON GLOBAL CONFLICT AND COOPERATION

IGCC ESSAY
JULY 2025

Using Distributional Politics to Understand Global Progress on Ecosystem Conservation

Luke Sanford and Cesar B. Martinez-Alvarez

Research Workshop on Climate Change, Green Backlash, and Democracy
UC San Diego, January 30-31, 2025

On January 30–31, 2025, IGCC convened a first-of-its-kind research incubator to examine the links between climate change, democratic backsliding, and public backlash against green policies. The conversation aimed to bridge the divide between scholars within the political and climate sciences to promote interdisciplinary studies at the crossroads between global environmental and governance challenges.

Workshop participants prepared memos before the meeting responding to two questions: *under which conditions can climate change and climate policies trigger a green backlash? And what are the consequences of climate change disruptions and green backlash for democracy?* These memos are now published as part of an ongoing IGCC essay series on Climate Change, Green Backlash, and Democracy.

About the Authors

Luke Sanford
Assistant Professor of Environmental Policy and Governance
Yale School of the Environment
Yale University

Cesar B. Martinez-Alvarez
Assistant Professor of Political Science
UC Santa Barbara

Suggested Citation

Sanford, Luke and *Cesar B. Martinez-Alvarez*. 2025. *Using Distributional Politics to Understand the Global Progress on Ecosystems Conservation*. IGCC Essay. escholarship.org/uc/item/2tm2g72j

Introduction

The agriculture, forestry, and land use sector accounts for approximately 23 percent of all greenhouse gas emissions globally—more than either the transportation or industrial sectors individually (Masson-Delmotte et al., 2022). Deforestation and forest degradation, mostly driven by the expansion of agricultural production, are the two key processes responsible for this carbon pollution. Forests absorbed about 1.5 times the annual emissions of the United States each year (over 8 gigatons) between 2001–2019 and store 861 gigatons of carbon (Harris et al., 2021). They also provide invaluable ecosystem services, such as the regulation of key ecological cycles, and other material and non-material benefits to the approximately 1.5 billion people living within a kilometer from a forest (Newton et al., 2020; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) et al., 2019). Moreover, for multiple Indigenous communities around the world, access to and ownership of forests represents an important political and symbolic objective. Despite the numerous benefits of forested ecosystems, their degradation is still a major issue, particularly in the tropics. Landed elites and agribusiness, some of the most powerful political actors in many countries in the Global South, are some of the key beneficiaries of these processes.

As in the case of emissions from the energy sector, the costs of policies to reduce the vast majority of greenhouse gas emissions from land use and land use change are concentrated in a small set of powerful stakeholders, while their non-climate benefits (such as preservation of biodiversity) are even more dispersed than in the case of, for example, renewable energy deployment. The goal of this essay is to build the case for a unifying theoretical framework to understand the political backlash against different policies that result in reductions of greenhouse gas emissions—including actions that are explicitly framed as climate policies and others that are not—applying some of the key insights of the literature on energy politics to the land use sector.

We argue that phasing out policies that incentivize deforestation—and other forms of land degradation—and implementing policies aiming at preserving forests and other ecosystems has the potential to generate political backlash from targeted constituencies—with some similarities to the processes that occur with the deployment of clean energy and the phase out of fossil fuels. In addition, the relatively low political salience of the issue enhances the role of interest groups, which are critical to the success of these actions. We start by briefly reviewing some of the existing evidence on the politics of deforestation, emphasizing some key gaps. We then continue exploring some potential conditions that may lead to green backlash in the land use sector. Finally, we focus on the impacts that this process has on democratic quality, particularly in the Global South.

The Politics of Land Use Change

The existing literature on the politics of land points to two key insights that are relevant to study the green backlash in this sector: (1) politicians use land allocation and conservation policies to benefit key stakeholders and, in doing, so they obtain electoral benefits; and (2) the power of the agricultural business is structural and deeply rooted in the political systems of many countries.

Regarding the first point, there is growing evidence that politicians can employ land policies for a wide range of political purposes, including state-building, redistribution of wealth, the conservation of certain ecosystems, and the expansion of political patronage (Scott, 2020; Albertus, 2015; Albertus and Klaus, 2025). One area of research provides evidence that, when elections are close, politicians in consolidating democracies are willing to trade off standing forests for political support, leading to increases in deforestation across countries (Sanford, 2023). Several studies have analyzed the role that electoral incentives play to shape land use patterns at the subnational level in countries like Brazil and Indonesia (Xu, 2024; Balboni et al., 2021; Bragança and Dahis, 2022; Pailler, 2018). The findings are conditional on local political conditions and institutions. Whereas local elections are associated with more deforestation in Brazil, they lead to lower, short-term environmental degradation (from wildfires) in Indonesia. Other studies show that political leaders in Brazil are strategic in their allocation of natural protected areas, as they tended to target municipalities ruled by the opposition with policies that had potential economic costs (Mangonnet, Kopas, and Urpelainen, 2022).

As for the second point, we know that landowners (and the agribusiness in general) are some of the most powerful constituencies in many countries in the Global South (Albertus, 2017; Milmanda, 2023). Therefore, implementing policies that affect their economic interests is likely to be politically costly—although there is much less empirical evidence in this respect. The literature on energy politics provides some hints about how these processes may unfold. For example, we know that part of the economic power and dominance of the fossil fuel industry responds to government policies that support them, in the form of public investments, favorable regulatory frameworks, and a wide range of production and consumption subsidies (Erickson et al., 2017; Mahdavi, Martinez-Alvarez, and Ross, 2022). As the growing research on the green backlash against the energy transition shows, dismantling the policy frameworks that built a powerful industry is quite politically sensitive for several reasons; although we know this is happening in the energy sector, as we discuss below, we have strong reasons to believe something similar may occur in the landed economy as well. The goal of this

essay is to show that green land use policies, like those in the renewable energy sector, face the challenge of diffuse benefits and a concentrated, organized opposition. In the following section, we discuss how this backlash may arise in the landed sector.

The Conditions for Green Backlash in the Land Sector

Land degradation, climate change, and the policies to address these issues can affect voters in two different ways: (1) their material conditions and (2) their informational environment. Regarding the former, the processes that lead to deforestation and climate change alter the productive value of different land-based resources (including crops and forestry, for example) as well as the opportunity cost of turning standing forests into commodities. In the case of government policies, some incentivize forest conservation, but may limit profits from the agricultural sector (Mangonnet, Kopas, and Urpelainen, 2022); in others, direct agricultural subsidies boost local incomes but lead to environmental degradation. As for the latter, in contrast to the impacts of climate change (Arias and Blair, 2024), the consequences of deforestation are less likely to change the information environment of most constituents, therefore limiting the opportunities for these to update their political beliefs and preferences. There are a few exceptions to this, in particular large-scale and highly salient events such as the Amazon wildfire season of 2019 (Araujo, Costa, and Garg, 2024).

The literature on the politics of energy transitions in the United States and Europe offers a starting point to understand how we go from these impacts to political backlash against mitigation policies in the land use sector. To further explore this issue, we draw upon three specific theoretical insights of this strand of research. First, we know that climate change policy can disrupt the labor markets of carbon-reliant communities, generating backlash when these are not effectively compensated (Aklin and Mildenberger, 2020; Bolet, Green, and Gonzalez-Eguino, 2023; Gazmararian and Tingley, 2023; Gazmararian, 2024; Mildenberger, 2020). Second, the extent to which sectors are either climate forcing, climate vulnerable, or both, shapes the political responses of their owners to different forms of climate policy (Colgan, Green, and Hale, 2021). Finally, top-down regulatory approaches to reduce greenhouse gas emissions confer competitive advantages to some firms, but not others, therefore affecting their political reactions to policy (Stigler, 1971; Peltzman, 1976).

We apply these theoretical insights to the land use sector, providing the following expectations: (1) top-down policies to reduce deforestation and the environmental footprint of commodity production, particularly those that originate from either national governments or international organizations, have the potential to generate green backlash, especially when they do not offer compensation packages to affected communities; (2) this phenomenon should be more likely among sectors of the

population that are more reliant on climate-forcing assets, for example the owners of different forms of agricultural production, that stand to lose from the reductions in income caused by anti-deforestation and conservation policies; (3) nonetheless, there should be heterogeneous effects based on the size and competitiveness of asset owners: the largest and most productive firms have more capacity to adapt their operations to a framework of stronger environmental policy, therefore deepening the green backlash among smaller firms.

In summary, similar to the literature on energy politics, we see green backlash in the land use sector as a phenomenon affecting both individuals and firms. Policies that aim to reduce the environmental (and specifically carbon) footprint in the land use sector are likely to generate intense backlash among the affected communities, especially when compensation packages are not available and when agriculture is a key employment sector. In the next three sections, we briefly explore each of these mechanisms of green backlash in the land use sector.

Agricultural Labor Markets, Climate Change, and Green Backlash

We view labor markets as the most likely mechanism that links together the implementation of conservation policies and green backlash, particularly when such policies affect employment opportunities at the local level. Most agricultural production in the world, particularly in the Global South, is highly labor intensive; for example, approximately one quarter of the world's population still works in small farms, most of which are subsistence rather than commercial (Roser, 2023).

Climate impacts (for example severe droughts and wildfires) and forest conservation policies are likely to have a larger labor effect compared to energy transition actions because of the larger number of workers in this sector, particularly in the developing world. Nonetheless, producers of these assets have different exposures to climate impacts and varying probabilities of being targeted by environmental conservation policies; such probabilities are driven by some economic and environmental variables, such as crop type, mode of agricultural production, and ecosystem. Moreover, some products and practices are highly mechanized (for example, large-scale wheat and soy production), while others resist mechanization (i.e. tree crop production). All of these factors affect the probability that green backlash emerges.

How might these effects appear? First, a changing climate will have severe direct and indirect impacts on agriculture, forestry, and other land-based activities; for example, shifts in temperature and precipitation, changes in soil quality, the expansion of the desert frontier, and more prevalent extreme weather events are already disrupting the production patterns associated with a wide range of commodities (Carter et al., 2018). As such, agricultural yields and quality are and will continue changing, and agricultural

practices will do so along with them. A growing area of study in economics shows that climate change forces people to sell off their lands, rely on external safety nets, and increases the overall levels of poverty (Morton, 2007).

We know from the literature on democratic accountability that voters tend to assess incumbent politicians for phenomena directly outside of their control, including the prices of commodities (Campello and Zucco, 2020) and natural hazards; nonetheless, we know much less about the role of climate change impacts. Specifically, there are significant gaps in our understanding of the extent to which voters blame specific politicians for their experienced climate impacts (if at all), including the connection between those effects and mitigation and adaptation efforts.

Second, environmental conservation policies can also generate backlash through a similar channel. The phaseout of agricultural subsidies, more stringent environmental regulations, and, most prominently, the implementation of land-based conservation policies, can also affect the availability of agricultural land and agricultural yields, therefore representing potential income shocks that affect workers and firms in these sectors. Drawing from the literature on political backlash in the energy sector, we know that when these types of policies are implemented without compensation packages, the affected populations become sensitive to messaging from political actors that promise the reversal of such actions.

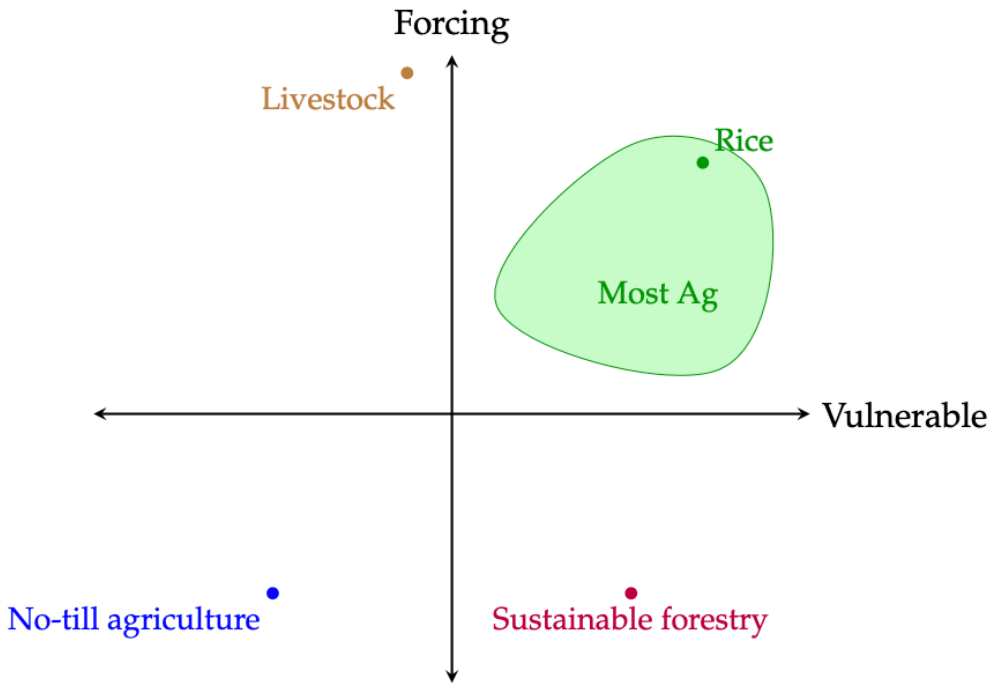
Climate-Forcing vs. Climate-Vulnerable Assets in the Land Sector

A second strand of research on the distributive politics of climate change suggests that the political battle between owners of climate-forcing and climate-vulnerable assets shapes the political opportunity for effective mitigation action (Colgan, Green, and Hale 2021). Climate change becomes existential for some, whereas climate action is so for other asset owners. Although this framework has not been applied to the land use and land use change sector, we argue that the existential conflict articulated by Colgan, Green, and Hale (2021) is useful to understand the window of political opportunity for climate action in this sector.

Land asset owners in the upper-right quadrant of Figure 1 are both highly vulnerable to and highly forcing of climate change; these include commodities such as rice and soybeans, among others (Poore and Nemecek, 2018). It is important to mention, however, that the extent to which these are important contributors to climate change depends on the specific productive processes and location of the crops; that is, the climate impact of a soybean plot in the Brazilian Cerrado is higher than a similar farm in Illinois—because of the deforestation associated with production in the former. This

subsector includes one of the largest contributors to greenhouse gas emissions globally: cattle ranching. The aforementioned theoretical framework does not provide strong expectations for the reactions of these sectors to more stringent environmental policies. Although these asset owners would benefit from green policy in the long term, the short-term losses could be strong enough to generate backlash. Indeed, recent events in countries such as Brazil suggest that more stringent environmental regulations may be associated with backlash from the powerful agribusiness sector, as we will explain later in the essay.

Figure 1. The climate forcing vs. climate vulnerable plane, with some suggested locations for various agriculture types. Most agriculture is both climate forcing and climate vulnerable.



As for the upper-left quadrant, in contrast to a large share of the fossil fuel industry, there are not many examples of land-based assets that are highly forcing, but not vulnerable—showcasing the systemic vulnerability of agriculture and other primary activities to global warming. The lower-right quadrant denotes assets that are at risk of being impacted by climate change but are relatively low emitters—for example, sustainable forestry in temperate regions, which are severely threatened by climate change via worsening wildfire conditions (Kirilenko and Sedjo, 2007). This sector should be more supportive of more effective climate policy. Finally, the lower-left quadrant—assets with low vulnerability and low carbon footprint, such as no-till agriculture in temperate regions—should probably be indifferent to climate policy.

Regardless, larger and more mechanized agricultural firms, those with irrigation systems, and those which are owned transnationally will be better able to both adapt to climate change and adjust their operations to stronger forms of environmental policy. In contrast, smallholders who rely on nonmechanized practices and rainfed crops will be much less resilient to both climate change and climate change policy. We suggest that the larger firms are likely to influence green policy to given them even more of a competitive advantage compared to smallholders.

Regulatory Capture and Green Backlash in the Land Sector

We do not expect the land sector to be monolithic. Instead, we anticipate important cleavages depending on the technological advantage of firms. The most productive farms have assets that are both climate-vulnerable and climate-forcing; as such, green policies may be economically beneficial or economically costly, depending on the policy. This group of firms includes, in particular, large multinational and national companies engaged in the production of commodities for exports, ranging from palm oil and soybeans to beef. Because many of the ways to reduce the carbon footprint in the agricultural sector rely on technology solutions like high-yield varieties, irrigation, and multicropping, larger firms will have an easier time implementing them and, therefore, they would be more likely to be involved in the creation of green agricultural policy compared to smaller ones. As a result, these firms may lobby for policies that reduce the environmental footprint of agriculture but give them a comparative advantage over smaller, more labor-intensive producers.

Similarly, these firms will be better able to adapt to a shifting climate because they are less constrained by liquidity, are more likely to have insurance, and are better able to invest in adaptation tools like irrigation systems or flood prevention measures. The result of these processes is that small, labor-intensive farms may face more of the costs of climate change and green policies compared to larger firms. This sets the stage for populist backlash, as candidates promise to revamp government support for a sector affected by global warming and impacted by green policies. In the last section of this essay, we outline some potential consequences that this phenomenon may have for democracies worldwide.

What Are the Consequences of Climate Change Disruptions and Green Backlash for Democracy?

In the prior section, we established that both climate change impacts and policies to reduce the environmental footprint of agriculture are likely to generate political backlash. In this section, we expand on the consequences that such a phenomenon may have for the quality of democracy, with a particular focus on the Global South. The first form of backlash occurs at the elite level. A large area of research in comparative politics shows that landed elites have historically been some of the most powerful interest groups in the Global South (Albertus, 2015, 2017). The globalization of primary commodities in regions like South America has enhanced their economic and political power (Campello and Zucco, 2020).

As such, we should expect that environmental policies that threaten their economic interests will be met with strong opposition. For example, the *Bancada Ruralista* in the Brazilian Congress—a large legislative caucus that includes some of the most powerful and wealthy landowners in the country, from a wide range of political parties—was able to shape the reform of the Brazilian Forest Code (a piece of legislation that oversees private forested areas) to erode further environmental restrictions that would strengthen the conservation governance framework of the country, even in opposition to the executive position (Milmanda, 2023; Hurwitz, 2012). The Brazilian case suggests that the expansion of the global demand for land-based commodities empowers traditional landed elites who have historically opposed the implementation of any form of policy that threatens to reduce their profits. Similar examples have occurred in other South American countries, such as Bolivia. In contrast to the owners of other climate-forcing assets, the theoretical expectations about the reactions of the agribusiness to climate change and climate change policy are more mixed, by virtue of their high exposure to both. As mentioned above, we should expect that some of the most productive firms (likely internationally owned agribusiness firms) will be able to adapt, and even support, more stringent environmental regulations because it gives them a competitive advantage.

The second form of political backlash from climate change and green land policies comes from the electorate. From the literature on the energy transitions, we know that political backlash becomes more likely when such policies are implemented without compensatory policies (Bolet, Green, and González-Eguino, 2023). Both climate change and many green policies will result in additional damages and costs to the agricultural sector, affecting, in particular, small farmers. This is fertile ground for populist leaders who promise to reverse green land policies. Though green land policies often have agricultural co-benefits via increased pollination services, microclimate, flood and

sediment reduction, and other pathways, these tend to be less visible and attributable than access to land.

In addition, opportunistic populist politicians, from both left and right political parties, may use the implementation of ecosystem conservation policies as a scapegoat for the hurdles of the agricultural industry. We have seen instances of this phenomenon in both the Global North and the Global South. In industrialized democracies, farmers have been some of the starkest opponents to different forms of environmental policy. Although this has happened in several European countries, perhaps the clearest example is the so-called "nitrogen crisis" in the Netherlands; as a result of different European and national-level regulations to enhance the conservation of critical habitats, groups of farmers engaged in various forms of contentious politics, causing one of the most serious political crisis since 2019 (Stokstad, 2019).

In countries like Brazil, Bolivia, and Paraguay, farmers affected by the volatility in the global commodity prices, the phase out of different forms of agricultural policy, and the implementation of strategies to promote forest conservation are key targets of populist politicians who promise to lift those restrictions and support the sector (de Andrade Aragao et al., 2024; Mendes Motta and Hauber, 2023). Nonetheless, in contrast to the existing research on the energy transitions in the Global North, we have extremely limited evidence of this phenomenon. Moreover, as mentioned before, the exposure of the land sector to climate change and climate policies is different enough from others to warrant adjustments in our theoretical expectations of the power and extent of green backlash.

Finally, the third and last form of political backlash that we identify in the land sector relates to institutions and social norms. Similar to the impacts that populist leaders have had in the Global North, the emergence of similar political movements among developing countries has led to attacks against environmentalists and environmental defenders (Scheidel et al., 2020). For example, in Brazil, the government of President Jair Bolsonaro was associated with direct and indirect attacks against the environmental bureaucracies of the country, for example, through reductions in the budget, which further compromised their ability to monitor illegal deforestation and enforce the environmental law. Although changes in fiscal priorities shift from one administration to another, public attacks from politicians undermine the credibility and resilience of these institutions. Further research is required to assess the extent to which voters alter their perceptions of environmental bureaucracies as a consequence of politicians' attacks against them.

The erosion of environmental (and other) political institutions and the delegitimization of environmental social movements worsen the conditions for the actions of environmental defenders. Latin America, Southeast Asia, and Africa are the regions with

the highest number of attacks—many of them lethal—against these groups (Scheidel et al., 2020). Similar to the previous point, there is, in general, very little research on the intersection between violence, organized crime, and environmental activism in the Global South, in particular, the extent to which elite-level antienvironmental political discourses incentivize behaviors such as land grabs, attacks against defenders, and illegal environmental degradation.

Finally, it is important to mention that the impacts of climate change will translate into disruptions in the quantity and quality of agricultural yields, extended droughts, and more severe extreme weather events, which are likely to cause widespread grievances against incumbent politicians. Directly, from the large literature on natural hazards and democratic accountability, we know that voters sometimes hold their representatives accountable for these phenomena, regardless of whether they have control over them or not. For example, Obradovich (2017) finds that climate-related disruptions (higher temperatures) are associated with lower turnouts for incumbent politicians, potentially harming the quality of governance when effective leaders lose power. Indirectly, climate change has the potential to exacerbate inequality, promote migration, and facilitate the conditions for the recruitment of individuals into extremist groups.

Conclusion

The main goal of this essay is to build the case to employ the distributive politics framework to understand the progress and backsliding in the implementation of sustainable land policies. We argue that such actions are likely to generate opposition among affected firms and individuals, similar to what happens with the energy sector. We suggest three lenses through which to interpret the distributive politics of green land policy: (1) labor markets, (2) the reaction of asset owners, and (3) regulatory capture. Each suggests that those likely to face the largest costs of both climate change and green policies are smallholder farmers. Some of the largest climate-forcing land-based assets are also very vulnerable to global warming, potentially making them more amenable to stronger forms of environmental policy—in contrast to the fossil fuel industry, which is much less exposed to these impacts. Furthermore, differences in size, technology, and capital are likely to generate important cleavages in this sector, with some groups of asset owners much more adaptable to climate and policy changes. Finally, we also discussed three potential impacts that the opposition against sustainable land policies may have on democracy at three different levels: (1) elites, (2) electorates, and (3) political institutions and social norms.

References

Aklin, Michaël and Matto Mildenberger. 2020. “Prisoners of the wrong dilemma: why distributive conflict, not collective action, characterizes the politics of climate change.” *Global Environmental Politics* 20(4):4–27.

Albertus, Michael. 2015. *Autocracy and redistribution*. Cambridge University Press.

Albertus, Michael. 2017. “Landowners and democracy: The social origins of democracy reconsidered.” *World Politics* 69(2):233–276.

Albertus, Michael and Kathleen Klaus. 2025. “Land and Politics.” *Annual Review of Political Science* 28.

Araujo, Rafael, Francisco Costa, and Teevrat Garg. 2024. “Going viral: public attention and environmental action in the Amazon.” *Journal of the Association of Environmental and Resource Economists* 11(6):1605–1627.

Arias, Sabrina B. and Christopher W. Blair. 2024. “In the Eye of the Storm: Hurricanes, Climate Migration, and Climate Attitudes.” *American Political Science Review* 118(4):1593–1613.

Balboni, Clare, Robin Burgess, Anton Heil, Jonathan Old, and Benjamin A. Olken. 2021. Cycles of fire? Politics and forest burning in Indonesia. In *AEA Papers and Proceedings*. Vol. 111 American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203 pp. 415–419.

Bolet, Diane, Fergus Green, and Mikel González-Eguino. 2023. “How to Get Coal Country to Vote for Climate Policy: The Effect of a “Just Transition Agreement” on Spanish Election Results.” *American Political Science Review* pp. 1–16.

Bragança, Arthur and Ricardo Dahis. 2022. “Cutting special interests by the roots: Evidence from the Brazilian Amazon.” *Journal of Public Economics* 215:104753.

Campello, Daniela and Cesar Zucco. 2020. *The volatility curse: Exogenous shocks and representation in resource-rich democracies*. Cambridge University Press.

Carter, Colin, Xiaomeng Cui, Dalia Ghanem, and Pierre Mérel. 2018. “Identifying the economic impacts of climate change on agriculture.” *Annual Review of Resource Economics* 10(1):361–380.

Colgan, Jeff D., Jessica F. Green, and Thomas N. Hale. 2021. “Asset revaluation and the existential politics of climate change.” *International Organization* 75(2):586–610.

de Andrade Aragao, Rafaela Barbosa, Mairon G Bastos Lima, Georgette Leah Burns, Helen Ross, and Duan Biggs. 2024. “‘Greenlash’ and reactionary stakeholders in environmental governance: An analysis of soy farmers against zero deforestation in Brazil.” *Forest Policy and Economics* 166:103267.

Erickson, Peter, Adrian Down, Michael Lazarus, and Doug Koplow. 2017. “Effect of subsidies to fossil fuel companies on United States crude oil production.” *Nature Energy* 2(11):891–898.

Gazmararian, Alexander F. 2024. “Sources of partisan change: Evidence from the shale gas shock in American coal country.” *The Journal of Politics* 87(2).

Gazmararian, Alexander F. and Dustin Tingley. 2023. *Uncertain futures: How to unlock the climate impasse*. Cambridge University Press.

Harris, Nancy L., David A. Gibbs, Alessandro Baccini, Richard A Birdsey, Sytze De Bruin, Mary Farina, Lola Fatoyinbo, Matthew C Hansen, Martin Herold, Richard A Houghton, et al. 2021. “Global maps of twenty-first century forest carbon fluxes.” *Nature Climate Change* 11(3):234–240.

Hurwitz, Zachary. 2012. “Dirty business in Brazil: Rousseff backslides on the environment.” *NACLA Report on the Americas* 45(1):17–22.

IPBES, E.S. Brondizio et al. 2019. “Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.”

Kirilenko, Andrei P. and Roger A. Sedjo. 2007. “Climate change impacts on forestry.” *Proceedings of the National Academy of Sciences* 104(50):19697–19702.

Mahdavi, Paasha, Cesar B. Martinez-Alvarez and Michael L. Ross. 2022. “Why do governments tax or subsidize fossil fuels?” *The Journal of Politics* 84(4):2123–2139.

Mangonnet, Jorge, Jacob Kopas, and Johannes Urpelainen. 2022. “Playing politics with environmental protection: the political economy of designating protected areas.” *The Journal of Politics* 84(3):1453–1468.

Masson-Delmotte, Valérie et al. 2022. “Climate change and land: an IPCC Special Report on climate change, desertification, land degradation, sustainable land management,

food security, and greenhouse gas fluxes in terrestrial ecosystems/edited by Valerie Masson-Delmotte [and twenty-one others].”.

Mendes Motta, Filipe and Gabriella Hauber. 2023. “Anti-environmentalism and proto-authoritarian populism in Brazil: Bolsonaro and the defence of global agri-business.” *Environmental Politics* 32(4):642–662.

Mildenberger, Matto. 2020. *Carbon Captured: How Business and Labor Control Climate Politics*. The MIT Press.

Milmanda, Belén Fernández. 2023. “Harvesting influence: agrarian elites and democracy in Brazil.” *Politics & Society* 51(1):135–161.

Morton, John F. 2007. “The impact of climate change on smallholder and subsistence agriculture.” *Proceedings of the national academy of sciences* 104(50):19680–19685.

Newton, Peter, Andrew T. Kinzer, Daniel C. Miller, Johan A..- Oldekop, and Arun Agrawal. 2020. “The number and spatial distribution of forest-proximate people globally.” *One Earth* 3(3):363–370.

Obradovich, Nick. 2017. “Climate Change May Speed Democratic Turnover.” Climatic Change 140(2):135–147.

Pailler, Sharon. 2018. “Re-election incentives and deforestation cycles in the Brazilian Amazon.” *Journal of Environmental Economics and Management* 88:345–365.

Peltzman, Sam. 1976. “Toward a More General Theory of Regulation.” *The Journal of Law & Economics* 19(2):211–240.

Poore, Joseph and Thomas Nemecek. 2018. “Reducing food’s environmental impacts through producers and consumers.” *Science* 360(6392):987–992.

Roser, Max. 2023. “Employment in Agriculture.” *Our World in Data*. https://ourworldindata.org/employment-in-agriculture.

Sanford, Luke. 2023. “Democratization, elections, and public goods: the evidence from deforestation.” *American Journal of Political Science* 67(3):748–763.

Scheidel, Arnim, Daniela Del Bene, Juan Liu, Grettel Navas, Sara Mingorría, Federico Demaria, Sofía Avila, Brototi Roy, Irmak Ertör, Leah Temper, et al. 2020. “Environmental conflicts and defenders: A global overview.” *Global Environmental Change* 63:102104.

Scott, James C. 2020. *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale university Press.

Stigler, George J. 1971. “The Theory of Economic Regulation.” *The Bell Journal of Economics and Management Science* 2(1):3–21.

Stokstad, Erik. 2019. “Nitrogen crisis threatens Dutch environment—and economy.” *Atmospheric Chemistry* 366(6470):1180–1181.

Xu, Alice Z. 2024. “Bureaucratic Packing” in the Brazilian Amazon: How Political Competition Drives Deforestation.” *The Journal of Politics*.