



“Who Has the Power to Adapt?” Frameworks for Resilient Agriculture Must Contend With the Power Dynamics of Land Tenure

Adam Calo*

Social, Economic and Geographical Sciences, The James Hutton Institute, Aberdeen, United Kingdom

This special issue aims to develop how Diversified Farming Systems (DFS) may contribute to adaptive capacity in order to confer resilience to agricultural systems. In this perspective article, I argue that a framework for DFS and adaptive capacity must adequately contend with the role of farmland tenure on the shape of food systems to be both internally coherent and socially redistributive. Yet, both DFS and adaptive capacity scholarship deemphasize or mischaracterize the role of farmland tenure in favor of ecosystem dynamics. In this paper, I bring together lessons from the agrarian change literature and established critiques of resilience thinking to demonstrate core problems with a framework aimed at linking DFS to adaptive capacity without adequately addressing the role of farmland tenure. Namely, applying resilience thinking as a framework to understand food systems change prioritizes concern over final “states” or processes of farming systems and may ignore who has the power to adapt or who derives benefits from adaptation. The critiques of resilience thinking inform that the result of this apolitical elision is (1) entrenchment of neoliberal logics that place responsibility to cultivate adaptation on individual farmers and (2) provisioning of legitimacy for land tenure systems that can most readily adopt DFS, without understanding how well these systems distribute public benefits. Resilience reformers call for ways to include more power aware analysis when applying resilience thinking to complex socio-technical systems. I suggest that centering the role of land tenure into the frameworks of DFS and adaptive capacity provides a lens to observe the power relations that mediate any benefits of agricultural diversification. Integrating analysis of the social and legal structures of the food system into the DFS for adaptive capacity formulation is a crucial step to transforming resilience thinking from an apolitical tool to transformative and power-aware applied science.

Keywords: land tenure, resilience thinking, food systems, diversified farming systems, property, adaptive capacity

OPEN ACCESS

Edited by:

Margiana Petersen-Rockney,
University of California, Berkeley,
United States

Reviewed by:

Margaret Buck Holland,
University of Maryland, Baltimore
County, United States
Uttam Khanal,
Grains Innovation Park, Australia

*Correspondence:

Adam Calo
adam.calo@hutton.ac.uk

Specialty section:

This article was submitted to
Agroecology and Ecosystem Services,
a section of the journal
Frontiers in Sustainable Food Systems

Received: 24 April 2020

Accepted: 18 November 2020

Published: 11 December 2020

Citation:

Calo A (2020) “Who Has the Power to
Adapt?” Frameworks for Resilient
Agriculture Must Contend With the
Power Dynamics of Land Tenure.
Front. Sustain. Food Syst. 4:555270.
doi: 10.3389/fsufs.2020.555270

INTRODUCTION

This special issue on *Diversifying Farming Systems for Adaptive Capacity* is motivated by the need to foster resilient farming systems in the face of the Anthropocene’s “triple challenge” of climate change, biodiversity loss, and sustainable resource provisioning. The issue-framing paper (Petersen-Rockney et al., 2020) introduces a formulation whereby Diversified Farming Systems

(DFS) supports the emergence of an equitable adaptive capacity when applied across a variety of ecological, agronomic, and social dimensions. In response to these threats, the authors of the framing paper suggest that agricultural systems can move along either simplifying or diversified pathways in pursuit of resilience. The central claim of this formulation is that “diversifying processes can weave a form of equitable and sustainable adaptive capacity that is fundamentally distinct from the narrow and brittle adaptive capacity produced through simplification” (Petersen-Rockney et al., 2020, p. 1). To further the ambitious aims of the framing paper, I provoke a deeper conversation about how farmland tenure complicates a framework linking DFS and adaptive capacity¹. While I support the core logic of the framing paper, I argue that by focusing on the complexity of land tenure relations, it is possible to show how building on concepts of adaptive capacity and resilience introduces challenges to effectively engage with power-laden concepts like equitable distribution and justice. I argue a subtle critique of the types of thinking presented in the framing paper and in resilience approaches more generally to help clarify how DFS frameworks may achieve equitable adaptive capacity. Specifically, I suggest that a focus on land tenure relations provides a mechanism to observe (and perhaps act on) the way interventions to improve agricultural adaptability deliver benefits to different actors across space and time.

Land tenure, the relationships of social and legal order that allocate resources to people, is the sieve through which agricultural decisions are ultimately made. Land tenure is produced through formal artifacts like property law and lease agreements, through the socio-cultural imaginations about who has legitimate claims to benefit from land’s resources, and notions of proper interactions across landscapes (Blomley, 2016). Without an adequate political emphasis on how land tenure, property relations, and land access constrain and enable farmer decision making, a framework response to the “triple threat” may fail on two fronts. First, recommendations for how to apply DFS practices to generate adaptive capacity may be muted by restrictive land tenure regimes in many agricultural contexts: farmers may be receptive to DFS, but with tenure insecurity may not have the power to make adaptive changes. Second, applying DFS for resilience alone may entrench unjust tenure regimes: farming systems may succeed in diversifying for resilience, but entrench the flow of ecosystem services and other benefits to those that control land access mechanisms. This second potential failure may provide legitimacy for unjust land tenure regimes as narrow conceptualizations of resilience become more normative in political and technical debates (Cretney, 2014). These problems are acute in geographies characterized by social and legal commitments to private property.

To support my arguments, I first examine the way resilience and DFS scholarship contends with the role of farmland

tenure on decision making. I show how resilience thinking emphasizes individual farmer decision making for adaptive capacity, tending to abstract the tenure contexts in which these decisions are made. Within the adaptive capacity and DFS literature that focus on global North contexts, land tenure regimes are often viewed as immutable, where any goal of alternative DFS decisions are achieved *through* the logics of established tenure norms and property law. When the core logics of property are unchallenged, I argue that the framework paper (and other resilience frameworks) may end up entrenching legal structures that influence the equity of agricultural systems by not engaging with the power dynamics of how land is distributed.

I then draw from research on agrarian political economy and property theorists to show how farmland tenure is understood as an upstream driver of land decision making. Land tenure is much more than discrete categories like “rented” or “owned,”—it is a regime, consisting of the social, cultural, and legal systems that distribute the power to access land and effectively exclude others (Hall et al., 2011). In some cases, like in much horticultural land in the US, land tenure regimes are somewhat homogenous, dominated by rigid legal norms of property through which security of tenure is associated with possession of a formal, state-backed title. In the global South there are more examples of secure tenure that are dependent on customary rights, semi-private holdings, community-held, or commons rather than the possession of a formal title (Robinson et al., 2018).

In this understanding of how land tenure functions, the power to decide (and therefore the capacity to adapt) is imbricated in socio-cultural notions of ownership and property, how they have been shaped over time, and the legal commitments that deliver access or ownership rights (Trauger, 2014). Given this understanding of tenure, decision making authority is constantly “assembled” through a negotiation of the many interests in land’s existing, imagined, and potential resources (Meinzen-Dick and Mwangi, 2008; Li, 2014).

The challenges of applying resilience frameworks to value-laden problems like land access stem from core problems with resilience thinking’s noted inability to account for politics and justice. An overemphasis on preserving core socio-ecological function leaves out questions of who benefits from a wide array of stable states that deliver “services” and functionality. However, centering the role of farmland tenure allows researchers in pursuit of an equitable resilience to ask, “Who has the power to adapt?” In this way, an analysis of farmland tenure could be a lens to observe the social relations that mediate any benefits of agricultural diversification. Practically, this signifies championing existing—but under-represented—farmland tenure systems, reforming dominant mal-adaptive property relations, and the co-creation of new land tenure systems to meet the evolving challenge of the “triple threat.” An exploration of “regenerative agriculture,” arguably a deeply stable and resilient state that operates through dominant logics of restrictive land ownership, is illustrative.

To articulate my perspective, I first examine the way resilience thinking and adaptive capacity tend to deemphasize or mischaracterize the role of land tenure. I contrast this general “agnosticism” toward land governance with the way agrarian

¹The author contributed to the special issue framing paper (Petersen-Rockney et al., 2020) in particular describing how land tenure presents challenges to diversified farming practices. In doing so, the author saw how land tenure complicates the framework presented and saw an opportunity to explore the role of land tenure of adaptive capacity more deeply in an effort to strengthen to framing paper and other resilience-based DFS formulations.

scholars prioritize land governance as a key site for reform for unsustainable food systems. In conclusion, I argue that embracing the complexity of land tenure provides a window into the political aspects of food systems' transition, where emphasis on diversification alone is insufficient to marshal transformative change.

RESILIENCE THINKING'S AGNOSTICISM TOWARD LAND TENURE

In this section I analyze key resilience and DFS texts to show how resilience frameworks tend to elide, deemphasize, or mischaracterize land tenure's role in agricultural contexts.

The concept of adaptive capacity, as a process that confers resilience, is mobilized to encourage new land use decision making in the pursuit of sustainability outcomes (Folke et al., 2010). In this pursuit, adaptive capacity and resilience literature is agnostic to the normativity of property relations (Joseph, 2013). Resilience scholars note the forces that drive behaviors of land managers, but usually do not specify the conditions that grant these users power to make decisions. Some researchers have explored the role of discrete tenure categories on determining sustainability indicators, for example the effect of owned land vs. rented on conservation decisions (Deaton et al., 2018; Ontl et al., 2018), but foundational resiliency contributions tend to elide the social and political processes of land tenure on shaping social ecological systems (SESS). In the Darnhofer et al. (2010) paper that first linked resilience thinking to agricultural contexts, the authors entrench the idea of farm decision making as determined by ownership status:

As decision making on farms is under direct influence from humans [...], applying resilience thinking to farming systems requires careful attention to the social domain. Indeed, *private ownership means that it is the farmers' right to manage their property as they see fit [...]* Thus it is ultimately the farmer who decides whether or not to cut down a windbreak, how much agrichemicals to use on his or her field, and whether to plant a woodlot or to drain a swamp (Darnhofer et al., 2010, p. 192, emphasis added).

Darnhofer et al.'s intention in the above is to highlight the forces that may shape an individual's decision making. To promote adaptive capacity, they argue, the motivations and knowledge capacity of an individual farmer must be understood. This line of thinking encourages much subsequent work aimed at understanding what motivates "behavior change" in the social worlds of landed farmers and farm managers (Sutherland and Darnhofer, 2012; Sutherland et al., 2012). The social domain that influences an individual land owner's decision making is important, but it ignores the power relations that shape who has the power to assume the role of land manager and what constraints they face because of their tenure context. The focus on the individual mind of the farmer assumes that all farmers have the power to make adaptive decisions (or perhaps the ones worth focusing on are the ones who have ownership rights).

In DFS scholarship, the role of land tenure is more recognized, but rather than being mischaracterized, it is viewed as part of the food system that must be worked through rather than transformed. Kremen et al. (2012) for example, recognizes how *de jure* and *de facto* discrimination in the US influenced a 98% decrease in the number of black farmers between 1910 and 1997. The authors discuss how many of these farmers practiced DFS, and that more diversity of US farmers would strengthen the social-ecological diversity of the food system. While the authors recommend a series of strategies to encourage inclusion of more farmers of diverse backgrounds, the legal and cultural systems that have shaped racially skewed land access regimes remain entrenched (Horst and Marion, 2018). In this way DFS frameworks recognize the need for diversified tenure categories, for example more smallholders of color, but do not challenge the property structures that create land tenure disparities.

THE ROLE OF LAND TENURE ON AGRARIAN CHANGE, FARMER DECISION MAKING, AND DISTRIBUTION OF RESOURCES

While resilience scholarship and DFS work do not foreground land tenure, research concerned with the political economy of agrarian change has long centered the foundational role of land tenure on food system composition. First, critical agrarian studies argue land enclosure, via the assertion of property rights, is the first pillar of agrarian capitalism (Bernstein, 2010). Beyond who possesses rights, scholars show how land *access*, or the many ways that institutions, individuals, policies, technologies, and power relations structure one's *ability* to benefit from a resource (Ribot and Peluso, 2009). Investigation of these access mechanisms, often codified in the informal and formal rules associated with land tenure, help explain who is able to make land use decisions and why DFS farmers are often marginalized in this process (Sikor and Lund, 2009). This research suggests that if the agency of agricultural decision making is found in the socio-legal structures that shape tenure, the role of property ownership and land governance is a "lock-in" that inhibits many food movement aspirations and is thus a target for change (Rotz et al., 2019; Lang, 2020). The constraining role of land access is a chief concern of global peasant groups like Via Campesina, who prioritize land reforms in the name of their agroecological objectives (Desmarais, 2002).

Land tenure regimes also shape who can *become* a land manager. Farmland financialization research shows how land registration and the formalization of property rights assemble land in a way that integrates with global capital and productivist agriculture (Li, 2014; Fairbairn, 2020). For young and beginning farmers who have the technical capacity to practice DFS, the land access barrier prevents their ability to enter the agricultural workforce at meaningful scales (Beckett and Galt, 2014; Carlisle et al., 2019) or limits their agency in restrictive tenant farming operations (Calo and De Master, 2016). Tenure also props up racial inequity, as those who control land access mechanisms

align with the dominant groups in society (Horst and Marion, 2018; Figueroa et al., 2020).

Rethinking farmland tenure entitlements is becoming more frequent and pressing for the aims of food systems transition (IPES Food, 2019). Land tenure security is seen as a policy target to allow for alternative agriculture, environmental justice, and agrarian transitions (Lawry et al., 2014). Scholars who work with concepts such as agroecology and food sovereignty champion marginalized tenure regimes like common-held, indigenous, or customary management systems with long histories of sustainable use (Borras and Franco, 2013; Penniman, 2018; Giraldo and McCune, 2019).

Agroecologists view secure farmland tenure as an enabling condition *that must proceed* technical food system interventions (Anderson et al., 2019; Giraldo and McCune, 2019). Kepkiewicz and Dale (2018) argue that “challenging hegemonic assumptions about private property” must occur before distributive forms of agroecology can emerge in the settler-state context of Canada. Edelman et al. (2014) asks, “What kinds of (land) property relations might characterize a food-sovereign society?” Scholars note that unbalanced political power flows through entrenched property relations and thus serious attention to challenging the broader “episteme of ownership” is needed for food system reform (Trauger, 2014, p. 1144).

DISCUSSION: THE PROBLEM WITH LOSING SIGHT OF LAND TENURE FOR ADAPTIVE CAPACITY

Amidst the increasing call from agroecologists and advocates of food sovereignty for food system transformation *through* land governance interventions, resilience thinking remains agnostic toward land tenure reforms. This problem of losing sight of land tenure for adaptive capacity has the effect of failure on two fronts: a failure of misplaced agency and a failure of theory of change. The failure of misplaced agency may incorrectly locate the power of decision making in land tenure regimes where the “farmers” are overly constrained by the social relations that condition their land access. The failure of theory of change occurs where the goal of encouraging adaptive capacity through DFS succeeds but in land tenure regimes that entrench an unequal distribution of resources.

In the first failure, consider geographies of Westernized liberal democracies, where the cultural, legal, and social notions of property and ownership are hegemonic and farmers are embedded in rental, indebted, or contract relationships (Wittman et al., 2017). These tenure regimes are reflected by the dominance of insecure farm tenancies, contract farming relationships, and agribusiness operations where decisions of land managers are constrained by the will of the land owner or land owning entity (Barnett et al., 2020). The knowledge, perceptions, motivations, and capacities of an insecure tenant farmer matters little to the resilience of the farm if their actions are constrained by a month-to-month lease or unequal landlord tenant relationship (Calo and De Master, 2016). Even if a tenant farmer implements DFS practices geared toward resilience, the benefits may accrue

to the land owner where the power of the owner trumps the entitlements of the user. Some diversification management practices deliver such near-term effects that even an insecure tenant farmer will benefit. Yet, as the benefits sought tend toward the long-term or the public facing, there appears little motivation or reward for insecure tenants to instigate decisions that lead to system adaptability.

In the second failure, without understanding who has the ability to implement new practices and who benefits from such changes, resilience thinking becomes dangerously apolitical. An unsettling result may come about if resilience thinking succeeds: the diversified farming practices that promote adaptive capacity may be more readily achieved through simplified land tenure regimes. In the Westernized liberal democracies, where the “fee simple absolute” form of property delivers strong and unlimited rights to decision making over land, the focus to incentivize a change to resilient states is likely to align with owners of private farmland property (Shoemaker, 2020). In regimes of more customary or collective tenure, the benefits of diversification will map onto the many contexts of land governance, each with their own distributional effects. In both cases, diversification for adaptive capacity reifies the dominant property relations by granting legitimacy through resiliency.

Imagine that the technical debates of DFS and resilience have been resolved. Land managers are now able to follow a set of consensus steps to maximize resilience, safeguard their livelihoods against future shocks, and address the “triple threat.” What farmland tenure regimes are most able to implement these changes? Farmers constrained in their long term decision making would potentially reject DFS practices and their “failure to adopt” would be attributed to lack of good information (Calo, 2018). Shifting cultivators without recognition of tenure may have the capacity to make changes in production practices, but lack the ability to implement changes over a continuous land area. In turn, the farms with simplified tenure could easily make changes at scale, reaping the benefits of diversification and meeting the indicators of resilience, which may be supported by policy incentives.

This thought experiment is more real than abstract. The rise of sustainable investment trusts, half earth philosophies, and land sharing advocates indicates the embrace of a resilience logic that prefers the “installation” of the correct type of land manager (Büscher and Fletcher, 2019). A management unit that can make large scale changes to land use is seen as a legitimate pathway to promote sustainable food systems. The power of this logic enrolls actors like conservation organizations, governments, and funding streams to focus on large plots of land with simplified land ownership as the targets for solutions like “regenerative” and “climate smart” agriculture (Borras and Franco, 2018). Under the heuristics of simplified vs. diversified pathways to adaptability, “regenerative agriculture” emerges as stable and diversified when examining the management practices and provisioning of ecosystem services, but simplified in terms of land tenure (and likely labor). The case of regenerative agriculture shows how both simplified and diversifying pathways can be pursued in parallel, with implications for the equity aspirations of DFS. This dynamic could explain how agribusiness interests show early articulation

with the more technically oriented “regenerative agriculture” because it may offer a robust preservation of socio-ecological function without challenging the status quo of power relations (Wozniacka, 2019). Yet, a focus on land tenure dynamics of regenerative agricultural models offers a way to question if the diversified practices therein are capable of delivering equity.

Learning From the Critique of Resilience Thinking

The incongruity of the core logics of adaptive capacity with the complexity of land tenure is indicative of a broader critique of resilience approaches. In the critique, resilience’s broad acceptance as a normative good is part of the project of neoliberalism (Reid, 2012; Aradau, 2014; Rotz and Fraser, 2018). The pitfalls described by resiliency’s critics help illuminate the barriers to be overcome by DFS frameworks that also aspire for a just food systems transformation. Brad Evans and Julian Reid, leading resiliency critics write:

Building resilient subjects involves the deliberate disabling of the political habits, tendencies and capacities of peoples and replacing them with adaptive ones. Resilient subjects are subjects that have accepted the imperative not to resist or secure themselves from the difficulties they are faced with but instead adapt to their enabling conditions (Evans and Reid, 2013, p. 85).

Resilience thinking places the responsibility to adapt and the requirement to change in the hands of the individual, replacing an entitlement of security with a responsibility to adapt. A “resilient subject” as Reid argues, is one that adapts to conditions without questioning what caused those conditions to arise. An insecure tenant is asked to implement practices to improve their margins over the short term, not question the tenant landlord relationship. A nomadic pastoralist is considered as over exploiting their resource base rather than as relegated from lowland pasture enclosure.

The consequence of this feature of resilience thinking is the way resiliency interventions build on the logic of individual capacity:

The danger, for development policy and practice, of errantly interpreting the concept of resilience as a characteristic of individuals or groups is that it could be construed as a justification to blame those who are most vulnerable and least able to marshal the resources necessary for developing resilient trajectories. Such an approach fails to adequately recognize the ways in which the adaptive capacity of individuals and groups is constrained by a variety of structures and organizations, as well as the entrenched dynamics of power (Walsh-Dilley et al., 2016, p. 4).

When resilience thinking is applied to policy actions, it appears as “capacity building” at the expense of structural reform (Aradau, 2014). This is the case when applied to an individual’s psychological capacity to respond (Murray and Zautra, 2012), an individual child’s capacity to adapt in learning situations (Luthar et al., 2000), and individual communities in a development context to make appropriate choices to maximize productivity (Watts, 2011). In agricultural contexts, researchers should ask to

what extent frameworks to achieve resilience act as a cudgel, a tool to pointing out “bad actors” with irrational behaviors in an era where all agriculture must change to meet the challenge of the triple threat.

While some more recent perturbations of resilience thinking have begun to ask “resilience for whom” (Cretney, 2014), there is a growing concern that resilience thinking in practice aligns too closely with the logics of individual agency and private property, ultimately producing neoliberal subjectivity (Reid, 2013).

CONCLUSION: RETHINKING THE EPISTEME OF PROPERTY FOR A ROBUST DFS FRAMEWORK

The harshest critics of resilience thinking argue that the most pernicious aspects of neoliberal governmentality are only deepened with resilience thinking’s continued rise (Reid, 2012; Evans and Reid, 2015). When resilience is hegemonic, the expectation of continuous disaster becomes normalized, placing responsibility for security on individual preparedness. Should agricultural resilience frameworks succeed without challenging the underlying norms of property relations, a DFS to adaptive capacity framework may further a logic of “responsibility *without* power” (Cretney, 2014, p. 633). Adjusting land tenure along simplifying or diversifying pathways is insufficient to deliver equity without considering how land tenure operates through informal access negotiations and in formal law.

However, some scholars argue that integration of the pillars of food sovereignty with resilience is the way to integrate issues of power into concerns of resilient farming systems. Walsh-Dilley et al. (2016, p.4) suggests, “Making visible the politics of resilience is the first step; the second step is to build conceptualizations of resilience that force us to contend with these tensions, contestations, and relations.”

For Walsh-Dilley et al. (2016), resilience frameworks tend to be based on indicators of land use outcomes, whereas food sovereignty is founded upon the promotion of new or strengthening of marginalized entitlements. In a food sovereignty context, these entitlements appear in the form of the right to food, the right to seed, and the right to land access. The way forward is thus to examine and then strengthen these entitlements: “A rights-based approach helps us to foreground these issues; people need access to the resources with which they might build resilience (Walsh-Dilley et al., 2016).”

In practice, a framework for adaptive capacity through DFS must develop tools and approaches for just tenure interventions across all possible contexts. Asking, “Who has the power to adapt?” provokes new lines of inquiry that support the justice dimensions of a DFS for adaptive capacity framework. Questioning the values behind and the distributional effects of existing land tenure dynamics of any given agricultural system allows proponents of DFS to understand who has the ability to make changes toward a “resilient trajectory” and what might need to be changed in order to broaden the class of potential diversified farmers (Carlisle et al., 2019).

This work would follow three strands. First, some tenure regimes are suitable for a just food system transition, but need to be safeguarded or expanded. Calls to assert state recognition of customary or indigenous land use rights fit this strand. Second, where dominant forms of land tenure regimes entrench inequity, a DFS framework must engage in the socio-legal processes required to reform land governance. The progress of the Land Reform (Scotland) Acts from 1997 to 2016, that create new powers to increase community land ownership is a notable example (Lovett, 2010). Third, the development and testing of new land tenure systems that facilitate DFS practices and redistribute benefits of diversification is a crucial area of research. Initiatives like the Agrarian Commons in the US and *Terre de Liens* in France, that seek to de-commodify agricultural land for diversified production are burgeoning examples.

In sum, the cultural, legal, and social norms that drive property relations must be examined, and in some cases contested, as a precursor for food system transformation frameworks. This same logic should be applied to the interaction of DFS and adaptive capacity. Left uncontested, diversifying farming systems for adaptive capacity could lead to resilient

states where the indicators of diversification are satisfied, but the entrenchment of unjust power relations come along as a result.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

ACKNOWLEDGMENTS

Thank you to Margiana Petersen-Rockney for motivating comments and to Orla Shortall for crucial feedback. Funding support for publication was provided by the UC Berkeley Center for Diversified Farming Systems.

REFERENCES

- Anderson, C. R., Bruil, J., Chappell, M. J., Kiss, C., and Pimbert, M. P. (2019). From transition to domains of transformation: getting to sustainable and just food systems through agroecology. *Sustainability* 11:5272. doi: 10.3390/su11195272
- Aradau, C. (2014). The promise of security: resilience, surprise and epistemic politics. *Resilience* 2, 73–87. doi: 10.1080/21693293.2014.914765
- Barnett, M. J., Spangler, K., Petrzela, P., and Filipiak, J. (2020). Power dynamics of the non-operating landowner-renter relationship and conservation decision-making in the midwestern United States. *J. Rural Stud.* 78, 107–114. doi: 10.1016/j.jrurstud.2020.06.026
- Beckett, J., and Galt, R. (2014). Land trusts and beginning farmers' access to land: exploring the relationships in coastal California. *J. Agric. Food Syst. Community Dev.* 4, 1–17. doi: 10.5304/jafscd.2014.042.008
- Bernstein, H. (2010). *Class Dynamics of Agrarian Change*. Halifax, NS: Fernwood Publishing.
- Blomley, N. (2016). The boundaries of property: complexity, relationality, and spatiality. *Law Soc. Rev.* 50, 224–255. doi: 10.1111/lasr.12182
- Borras, J., and Franco, J. C. (2018). The challenge of locating land-based climate change mitigation and adaptation politics within a social justice perspective: towards an idea of agrarian climate justice. *Third World Q.* 6597, 1–18. doi: 10.1080/01436597.2018.1460592
- Borras, S. M., and Franco, J. C. (2013). Global land grabbing and political reactions “from below.” *Third World Q.* 34, 1723–1747. doi: 10.1080/01436597.2013.843845
- Büscher, B., and Fletcher, R. (2019). Towards convivial conservation. *Conserv. Soc.* 17, 283–296. doi: 10.4103/cs.cs_19_75
- Calo, A. (2018). How knowledge deficit interventions fail to resolve beginning farmer challenges. *Agric. Hum. Values* 35, 367–381. doi: 10.1007/s10460-017-9832-6
- Calo, A., and De Master, K. (2016). After the incubator: factors impeding land access along the path from farmworker to proprietor. *J. Agric. Food Syst. Community Dev.* 6, 1–17. doi: 10.5304/jafscd.2016.062.018
- Carlisle, L., Montenegro de Wit, M., DeLonge, M. S., Iles, A., Calo, A., Getz, C., et al. (2019). Transitioning to sustainable agriculture requires growing and sustaining an ecologically skilled workforce. *Front. Sustain. Food Syst.* 3:96. doi: 10.3389/fsufs.2019.00096
- Cretny, R. (2014). Resilience for whom? Emerging critical geographies of socio-ecological resilience. *Geogr. Compass* 8, 627–640. doi: 10.1111/gec3.12154
- Darnhofer, I., Fairweather, J., and Moller, H. (2010). Assessing a farm's sustainability: insights from resilience thinking. *Int. J. Agric. Sustain.* 8, 186–198. doi: 10.3763/ijas.2010.0480
- Deaton, B. J., Lawley, C., and Nadella, K. (2018). Renters, landlords, and farmland stewardship. *Agric. Econ.* 49, 521–531. doi: 10.1111/agec.12433
- Desmarais, A. A. (2002). The via campesina: consolidating an international peasant and farm movement. *J. Peasant Stud.* 29, 91–124. doi: 10.1080/714003943
- Edelman, M., Weis, T., Baviskar, A., Borras, S. M., Holt-Giménez, E., Kandiyoti, D., et al. (2014). Introduction: critical perspectives on food sovereignty. *J. Peasant Stud.* 41, 911–931. doi: 10.1080/03066150.2014.963568
- Evans, B., and Reid, J. (2013). Dangerously exposed: the life and death of the resilient subject. *Resilience* 1, 83–98. doi: 10.1080/21693293.2013.770703
- Evans, B., and Reid, J. (2015). Exhausted by resilience: response to the commentaries. *Resilience* 3, 154–159. doi: 10.1080/21693293.2015.1022991
- Fairbairn, M. (2020). *Fields of Gold: Financing the Global Land Rush*. Ithaca, NY: Cornell University Press. doi: 10.1515/9781501750106
- Figueroa, M., Penniman, L., Feldman, M., Treake, J., Pahnke, A., Calo, A., et al. (2020). *Land Access for Beginning and Disadvantaged Farmers. Data For Progress, Green New Deal Policy Series*. Available online at: https://filesforprogress.org/memos/land_access_for_beginning_disadvantaged_farmers.pdf (accessed November 27, 2020).
- Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T., Rockstrom, et al. (2010). Resilience thinking: integrating resilience, adaptability and transformability. *Ecol. Soc.* 15:20. doi: 10.5751/ES-03610-150420
- Giraldo, O. F., and McCune, N. (2019). Can the state take agroecology to scale? Public policy experiences in agroecological territorialization from Latin American. *Agroecol. Sustain. Food Syst.* 43, 785–809. doi: 10.1080/21683565.2019.1585402
- Hall, D., Hirsch, P., Li, T., and Challenges of the Agrarian Transition in Southeast Asia (Project) (2011). *Powers of Exclusion c/Land Dilemmas in Southeast Asia*. Honolulu: University of Hawai'i Press.
- Horst, M., and Marion, A. (2018). Racial, ethnic and gender inequities in farmland ownership and farming in the U.S. *Agric. Hum. Values* 36, 1–16. doi: 10.1007/s10460-018-9883-3
- IPES Food [International Panel of Experts on Sustainable Food Systems] (2019). *Towards a Common Food Policy for the European Union: The Policy Reform and Realignment that is Required to Build Sustainable Food Systems in Europe*. IPES Food (International Panel of Experts on Sustainable Food Systems). Available online at: http://www.ipes-food.org/_img/upload/files/CFP_FullReport.pdf (accessed 22 November 2020).

- Joseph, J. (2013). Resilience as embedded neoliberalism: a governmentality approach. *Resilience* 1, 38–52. doi: 10.1080/21693293.2013.765741
- Kepkiewicz, L., and Dale, B. (2018). Keeping 'our' land: property, agriculture and tensions between Indigenous and settler visions of food sovereignty in Canada. *J. Peasant Stud.* 6150, 1–20. doi: 10.1080/03066150.2018.1439929
- Kremen, C., Iles, A., and Bacon, C. (2012). Diversified farming systems: an agroecological, systems-based alternative to modern industrial agriculture. *Ecol. Soc.* 17:44. doi: 10.5751/ES-05103-170444
- Lang, T. (2020). *Feeding Britain: Our Food Problems and What to Do About Them*. Gretna, LA: Pelican.
- Lawry, S., Samii, C., Hall, R., Leopold, A., Hornby, D., and Mtero, F. (2014). The impact of land property rights interventions on investment and agricultural productivity in developing countries: a systematic review. *Campbell Syst. Rev.* 10, 1–104. doi: 10.4073/csr.2014.1
- Li, T. M. (2014). What is land? Assembling a resource for global investment. *Trans. Inst. Br. Geogr.* 39, 589–602. doi: 10.1111/tran.12065
- Lovett, J. (2010). Progressive property in action: the land reform (Scotland) act 2003. *Neb. Law Rev.* 89, 739–809.
- Luthar, S. S., Cicchetti, D., and Becker, B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Dev.* 71, 543–562. doi: 10.1111/1467-8624.00164
- Meinzen-Dick, R., and Mwangi, E. (2008). Land use policy cutting the web of interests: pitfalls of formalizing property rights. *Land Use Policy* 26, 36–43. doi: 10.1016/j.landusepol.2007.06.003
- Murray, K., and Zautra, A. (2012). "Community resilience: fostering recovery, sustainability, and growth," in *The Social Ecology of Resilience: A Handbook of Theory and Practice*, ed M. Ungar (New York, NY: Springer), 337–345. doi: 10.1007/978-1-4614-0586-3_26
- Ontl, T. A., Swanston, C., Brandt, L. A., Butler, P. R., D'Amato, A. W., Handler, S. D., et al. (2018). Adaptation pathways: ecoregion and land ownership influences on climate adaptation decision-making in forest management. *Clim. Change* 146, 75–88. doi: 10.1007/s10584-017-1983-3
- Penniman, L. (2018). *Farming While Black: Soul Fire Farm's Practical Guide to Liberation on the Land*. Hartford, CT: Chelsea Green Publishing.
- Petersen-Rockney, M., Baur, P., Guzman, A., Bender, S. F., Calo, A., Castillo, F., et al. (2020). Adaptive capacity emerges from diversifying farming systems. *Front. Sustain. Food Syst.*
- Reid, J. (2012). The disastrous and politically debased subject of resilience. *Dev. Dialogue* 58, 67–80.
- Reid, J. (2013). Interrogating the neoliberal biopolitics of the sustainable development-resilience nexus. *Int. Polit. Sociol.* 7, 353–367. doi: 10.1111/ips.12028
- Ribot, J. C., and Peluso, N. L. (2009). A theory of access. *Rural Sociol.* 68, 153–181. doi: 10.1111/j.1549-0831.2003.tb00133.x
- Robinson, B. E., Masuda, Y. J., Kelly, A., Holland, M. B., Bedford, C., Childress, M., et al. (2018). Incorporating land tenure security into conservation. *Conserv. Lett.* 11, 1–12. doi: 10.1111/conl.12383
- Rotz, S., Fraser, E. D. G., and Martin, R. C. (2019). Situating tenure, capital and finance in farmland relations: implications for stewardship and agroecological health in Ontario, Canada. *J. Peasant Stud.* 46, 142–164. doi: 10.1080/03066150.2017.1351953
- Rotz, S., and Fraser, E. (2018). "The limits of sustainability and resilience frameworks: lessons from agri-food system research," in *Routledge Handbook of Sustainability Indicators*, eds S. Bell, and S. Morse (Abingdon-on-Thames: Taylor and Francis Group), 103–116.
- Shoemaker, J. A. (2020). Fee simple failures: rural landscapes and race. *SSRN Electron. J.* doi: 10.2139/ssrn.3714326
- Sikor, T., and Lund, C. (2009). Access and property: a question of power and authority. *Dev. Change* 40, 1–22. doi: 10.1111/j.1467-7660.2009.01503.x
- Sutherland, L.-A., and Darnhofer, I. (2012). Of organic farmers and 'good farmers': changing habitus in rural England. *J. Rural Stud.* 28, 232–240. doi: 10.1016/j.jrurstud.2012.03.003
- Sutherland, L. A., Burton, R. J. F., Ingram, J., Blackstock, K., Slee, B., and Gotts, N. (2012). Triggering change: towards a conceptualisation of major change processes in farm decision-making. *J. Environ. Manage.* 104, 142–151. doi: 10.1016/j.jenvman.2012.03.013
- Trauger, A. (2014). Toward a political geography of food sovereignty: transforming territory, exchange and power in the liberal sovereign state. *J. Peasant Stud.* 41, 1131–1152. doi: 10.1080/03066150.2014.937339
- Walsh-Dilley, M., Wolford, W., and McCarthy, J. (2016). Rights for resilience: food sovereignty, power, and resilience in development practice. *Ecol. Soc.* 21:11. doi: 10.5751/ES-07981-210111
- Watts, M. J. (2011). "Ecologies of rule: African environments and the climate of neoliberalism," in *The Deepening Crisis: Governance Challenges After Neoliberalism*, eds C. Calhoun and G. Derluquian (New York University, New York), 67–91.
- Wittman, H., Dennis, J., and Pritchard, H. (2017). Beyond the market? New agrarianism and cooperative farmland access in North America. *J. Rural Stud.* 53, 303–316. doi: 10.1016/j.jrurstud.2017.03.007
- Wozniacka, G. (2019). *Big Food is Betting on Regenerative Agriculture to Thwart Climate Change*. *Civil Eats*. Available online at: <https://civileats.com/2019/10/29/big-food-is-betting-on-regenerative-agriculture-to-thwart-climate-change/> (accessed April 24, 2020).

Conflict of Interest: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2020 Calo. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.