

Review Article

Homelessness and nature across landscapes and disciplines: A literature review

Seamus R. Land^{a,*}, Monika M. Derrien^b^a University of Montana, Jeannette Rankin Hall 106A, 32 Campus Drive, Missoula, MT 59801, United States^b USDA Forest Service Pacific Northwest Research Station, 400 N 34 St., Suite 201, Seattle, WA 98103-8600, United States

HIGHLIGHTS

- We describe the intersections of homelessness and natural resource management.
- We find an increasing focus on social-ecological aspects of homelessness.
- We find a predominantly urban, social, and qualitative focus.
- We encourage a research agenda on unsheltered homelessness across landscapes.

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ABSTRACT

The complex social-ecological dynamics of homelessness in natural resource management have become increasingly apparent in recent years. Systematically understanding and engaging with these dynamics across sectors, disciplines, and landscapes has presented a conceptual and methodological challenge for both practitioners and researchers. Though some interdisciplinary research has expanded in recent years, the understanding it has fostered largely remains fragmented across disciplines, and its implications for practice are poorly understood. To help create connections across this fragmented dialogue, we reviewed 111 relevant academic journal articles, books, and reports across a broad range of disciplines. Across this literature, we observed an increasing focus on understanding homelessness drivers, impacts, and solutions through a coupled social-ecological systems lens, though key gaps remain. Research oriented towards urban studies, environmental justice, public health, political ecology, and Indigenous studies offered especially important methodological and conceptual innovations that promise to better confront and address justice in fluid, dynamic, and integrated social-ecological systems. We discuss opportunities for studies to better incorporate community concerns, attend to heterogeneous homeless populations, apply multiple scales of analysis across disciplines, address market forces, incorporate diverse worldviews and researcher reflexivity, and address complex social-ecological challenges like climate change. To help mobilize around these needs and opportunities, we encourage researchers, practitioners, and people with lived experiences of homelessness to co-produce a research agenda, a process which could establish a shared foundation for increased collaboration across sectors and disciplines and identify priorities for better understanding and attending to the complex and contested challenges of homelessness across landscapes.

1. Introduction

Homelessness is increasingly recognized as a complex, intractable, and interdisciplinary issue, one whose solutions remain highly contested in different environments. Scholars have observed that in natural resource management contexts, there are inadequate understandings and approaches to homelessness across both urban and wildland

landscapes (Cervený & Baur, 2020; Koprowska et al., 2020; Neild & Rose, 2018). The most recent estimates from the US Department of Housing and Urban Development reveal that 653,100 people experienced homelessness on a single night in the United States in 2023, showing a marked increase from previous years' annual estimates (de Sousa et al., 2023). An estimated 40 % of this population is categorized as 'unsheltered,' meaning people who are living outdoors, in vehicles,

* Corresponding author.

E-mail addresses: seamus.land@umt.edu (S.R. Land), monika.derrien@usda.gov (M.M. Derrien).<https://doi.org/10.1016/j.landurbplan.2024.105254>

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parks, and other areas not designed for human habitation (de Sousa et al., 2023).

Across urban and wildland landscapes, homelessness occurs in spaces commonly characterized by either their ‘social’ or ‘natural’ characteristics, but that arguably should be described by both in an integrated way. To address this bifurcation, an express call has emerged in recent years to understand homelessness in interdisciplinary ways, especially at the intersections of complex social and ecological systems (Abdel-Samad et al., 2021; Anderson et al., 2021; Derrien et al., 2023; Fowler et al., 2019; Rose, 2017). This call includes increased attention to the ways homeless populations use public lands such as parks, forests, riparian areas, and open space for temporary shelter, and the ways environmental and sustainability professionals interact with this population and manage the spaces they inhabit.

In recent decades, scholars in the sustainability sciences have introduced a variety of analytical formulations for better recognizing the ‘interdependence of humans and nature within academic, civil, policy, and business spheres’ (West et al., 2020, p. 305). Existing analytical alternatives to the limitations of modernist and positivist paradigms include approaches described as social-ecological (Folke et al., 2003), socioecological (Briassoulis, 2017), human-environment (West et al., 2020), naturecultures (Haraway, 2008), actor-networks (Latour, 2007), more-than-human social relations (Tsing et al., 2019), reciprocity (Kimmerer, 2011), kincentric ecology (Salmon, 2000), world-ecologies (Moore, 2015), relationism (Ingold, 2018), hybrid or coupled human-natural systems (Fischer et al., 2015; Gibson et al., 2000), and many others. These approaches draw on the tenets of interdisciplinary scholarship by integrating theoretical frameworks, study designs, and methodologies from multiple disciplines (Aboelela et al., 2007). Theoretical and epistemological tensions and gaps pervade these approaches, but together they commit to holistic, complex formulations of human-nature interactions. Here, we use the lens of social-ecological systems (SES) to analyze scholarship on homelessness, because of its common currency in academic discourse, governance, and networks of practice (Ostrom, 2009), and its broad contributions to rich interdisciplinary and epistemic dialogue (Manyani et al., 2024).

Limited research has responded to the call to operationalize an interdisciplinary, social-ecological systems approach to studying homelessness. For example, Abdel-Samad et al. (2021) proposed addressing homelessness on the community level through their interdisciplinary collective impact and capacity-building model; while they include environmental design and engineering considerations in their model, the role of natural resource managers and public lands is not clear. There remains a need for researchers to understand the dynamics of homelessness as a coupled social-ecological issue, and to work with practitioners to apply that understanding (Derrien et al., 2023).

To our knowledge, no prior literature review has been published on the dynamics of unsheltered homelessness in the context of environmental and natural resource management. In the interest of closing this gap and advancing scholarly inquiry, we conducted a narrative literature review. We were motivated by three factors. First, the scholarly dialogue appeared to be fragmented across multiple disciplines, using considerable terminological diversity that is not always referential to work across disciplines. Second, scholarly publications seemed to be increasing in number, signaling a growing interest and/or relevance in these topics. Third, we observed growing popular media coverage of these topics, offering anecdotal insights into the dynamics among competing uses, and the costs for natural resource managers and vulnerable populations (e.g., Carlton, 2023; Healy, 2017; Tory, 2021; Westneat, 2021). With these motivations, we structured our literature review to answer the following guiding question: How have researchers used social and ecological approaches to describe and study the intersections between homelessness and natural resource management? In answering this question, we seek to create a foundation that informs both research and practice related to homelessness, in the realms of environmental governance and ethics, ecological restoration, public

lands management, and SESs more broadly.

2. Review methods

To answer our guiding question, we conducted a literature review in August and September 2023, using standard methods for a narrative, integrative review (Pautasso, 2019). Our initial search for literature used Google Scholar and the University of Montana OneSearch function, searching for combinations of the following keywords: community; conservation; conservationist; displacement; ecological; ecological restoration; ecology; ecosystem services; environment; environmental; governance; health; healthy; homeless; homelessness; management; nature; political ecology; property; real estate; restoration; restoring; social-ecological; stewardship; unhoused; and unsheltered. We included articles published between January 1, 1992, and August 1, 2023.

After compiling the publications retrieved through this initial search, we began reading them. We made decisions to exclude publications from the list that did not help us answer our guiding question. For those we retained, we organized information about them in an Excel spreadsheet. The spreadsheet included the following columns (Appendix A): Publication Year; Author; Title; Journal/Publication; Disciplinary Orientation; Dominant Social or Ecological Leaning; and Study Approach. For the latter three columns, we developed an iterative heuristic method for categorizing publication characteristics. We categorized ‘disciplinary orientation’ based on how authors described their approach in the publication, the literature they primarily referenced, and methods they used (our interest was in the publication as the unit of interest, so this categorization was not based on the author(s)’s disciplinary training/affiliation(s) nor the aims/scope of the journal or book in which the publication appeared; we recognize these may not align). We categorized ‘dominant social or ecological leaning’ according to the publication’s orientation to theories of social or ecological processes (or both) and the type of data used. We based the ‘study approach’ categories primarily on the style of publication (e.g., review, original research), and the type of data and/or collection methods used.

Both authors reviewed all journal articles, reports, book chapters, and dissertations/theses to ensure consistency and agreement on categorizations, though we acknowledge these categorizations are imperfect because of blurred definitions and boundaries of disciplines and their practices (see Howlett & Turner, 2024; Krishnan, 2009). Because of capacity limitations, we did not follow this practice for four of the books included in the review—only one author read and categorized each of these, and presented summary material to the second author. We also noted each publication’s thesis, the aspect of land management it considered (if any), the types of social or ecological data it drew from, and challenges and solutions it proposed. We did not evaluate the methodological rigor or quality of the publications reviewed, and rather focused on describing the research approaches and focus areas.

As we reviewed the publications from our first search, we noted other potentially relevant publications cited to add to our list to review. We also added three new keywords: tent city; encampments; and environmental justice. We then conducted the search again to retrieve additional publications for our consideration, and we reviewed those using the same methods. Even with these additions, we acknowledge that our selection of the review’s search terms limits our findings and reflects our own disciplinary orientations, growing awareness, and biases.

It is important to note that we do not consider the resulting set of publications included in our review as comprehensive or representative of scholarship on all linkages between homelessness and all environmental issues. For example, we did not include publications about urban homeless encampments that were not situated in parks, forests, riparian areas, or other public green spaces, even if the article briefly mentioned environmental concerns (e.g., waste management). As a result, our included publications represent a relatively focused attempt to review literature expressly focused on the ways ecological and social systems intersect within the context of homelessness and natural resource

management.

3. Review findings

3.1. Publications reviewed

The 111 publications included in our review findings were published between 1992 and 2023, with more than half of them published since 2017 (Fig. 1). They came from a range of 65 unique academic journals from a wide range of disciplines, along with a variety of books, master’s theses, doctoral dissertations, and reports (Table 1). Geographically, the majority of publications focused on the United States, most often on states on the West Coast (predominantly California), but also on Southwestern states and major urban centers like New York, Atlanta, and Chicago. Fewer publications focused on other countries; these examined facets of homelessness in Canada, France, Mexico, England, New Zealand, Australia, Turkey, Poland, Greece, Brazil, and Sweden. Some publications did not have a specific geographic focus, instead focusing on concepts or terminology (see following subsections).

3.2. Terminology used in publications reviewed

We found great terminological diversity across the body of literature on homelessness and natural resource management (Table 2). We use ‘homelessness’ as our orienting term in this review because we observed its ubiquity in the literature and in public discourse, though some highlighted the ideological and contested political nature of the term (e.g., Springer, 2000). In response to this need for ontological clarity, some authors defined and used terms such as ‘non-recreational campers’ (Baur & Cervený, 2019), ‘rough sleepers’ (Frye et al., 2019), ‘people living with no roof’ (DeMyers et al., 2017), ‘people experiencing homelessness’ (Rose & Wilson, 2019), ‘unhoused’ (Neild & Rose, 2018), ‘people out of place’ (Cloke et al., 1999), and ‘houseless’ (Springer, 2000). This range contributed to a robust academic conversation (Hamilton, 2007), but some authors noted that diverse terms contributed to a more fragmented dialogue (Gibson, 2019), and it certainly made it more challenging to ensure this review was comprehensive. Hodgetts & Stolte (2016: 899) asserted that a ‘preoccupation with developing definitions largely reflects the agendas of domiciled society for managing the urban ‘problem’ of homelessness.’ They and other authors who explicitly discussed their terminological choices used the opportunity to emphasize that conceptions of homelessness are personally fluid, relational, and contextual,

Table 1
Summary of literature search and publications included in review.

Search terms	community; conservation; conservationist; displacement; ecological; ecological restoration; ecology; ecosystem services; encampments; environment; environmental; environmental justice; governance; health; healthy; homeless; homelessness; management; nature; political ecology; property; real estate; restoration; restoring; social-ecological; stewardship; tent city; unhoused; unsheltered.
Publication dates	1992–2023
Total # publications reviewed	111
# of journal articles	82
# of books / book chapters	11
# other publications (e.g., dissertations, theses, and reports)	18
Unique journals represented	65

Table 2
Common terminology used to describe homeless populations.

Terminology used	Example citations
The homeless or homeless people	Donley & Wright, 2012; Verbyla et al., 2021
Houseless people	Goodling, 2020; Springer, 2000
Non-recreational campers	Baur & Cervený, 2019; Southard, 1997
People or individuals experiencing homelessness	Anderson et al., 2021; Flanigan & Welsh, 2020; Rose & Wilson, 2019
People out of place	Audell, 2020; Cloke et al., 1999
People living with no roof	DeMyers et al., 2017
Rough sleepers	Frye et al., 2019
Unhoused	Neild & Rose, 2018; Springer, 2000

and that associated issues are socially constructed and situated in orientations of power that traverse nature and society (e.g., Rose, 2017). Many authors noted that regardless of the terminology used, there is a need to understand the heterogeneity of the population of interest (Klein & Riemer, 2011; Southard, 1997), especially across categories of gender (Goldsmith & Bell, 2022), race, and geography (Rose & Johnson, 2017). Notably, this heterogeneity is important across rural and urban settings (Cloke et al., 1999). Authors noted that democratic processes like planning for transportation can be strained and inequitable, in part because homeless populations are often treated as a homogenous ‘other’

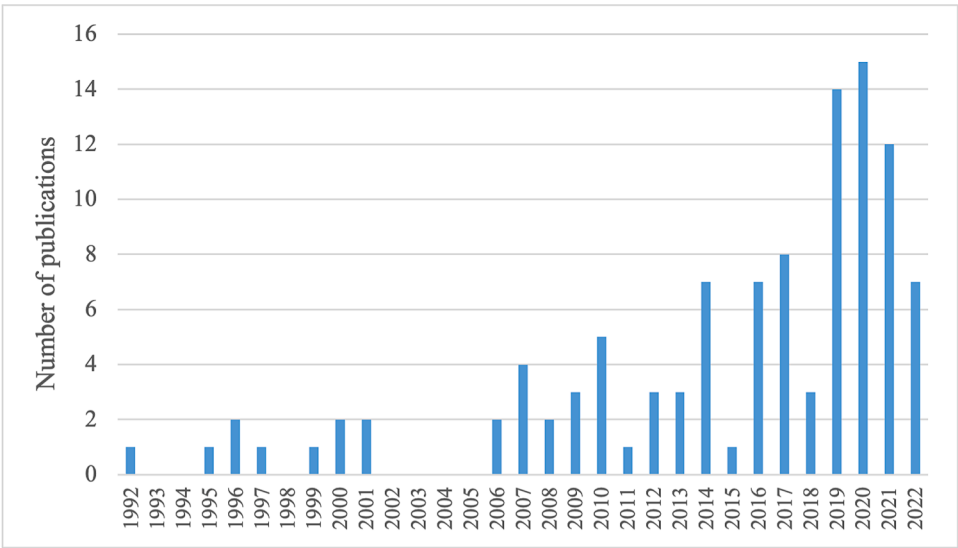


Fig. 1. Publications per year from 1992 to 2022 included in literature review on homelessness and natural resource management (2023 publications are excluded from figure because it was an incomplete year at the time of review).

despite the heterogeneity of conditions that can characterize and drive their status (Ricord, 2020: 2).

Several publications relied on Southard's (1997) three-part typology of homelessness on rural public lands (voluntarily nomadic, economic refugees, and separatists), but the socioeconomic context described represents a narrow geographical and historical context. Speer (2017) asserted that conceptions of home, nature, and public space need to be recognized as political and historically contingent when understanding any definition of homelessness. As a result, Southard's (1997) typology has mostly been used by authors as a starting point, rather than an exhaustive categorization of subpopulations (e.g., Cervený & Baur, 2020; Neild & Rose, 2018).

3.3. Study approaches in publications reviewed

Publications included original research studies that analyzed a wide range of primary and secondary data types, and some were structured as various types of review or conceptual articles. Methods of data collection in the publications in our review varied, though they were predominantly qualitative (Table 3). We present the primary approaches we categorized for publications, though we note that authors commonly mobilized multiple approaches to understanding complex concepts and cases.

Conceptual approaches were most common, employed in 31 publications. In these, authors synthesized new or existing concepts, theories, and historical perspectives, and introduced examples and case studies to develop their arguments. Qualitative interviews were used as the primary approach in 25 of the publications reviewed. We categorized 15 publications as using ethnographic approaches, integrating multiple methods, such as participant observation and interviews. Combined, these two related categories represent the most common study approach in the review. Reviews of policy and law were less common, employed in nine of the publications. Qualitative and quantitative surveys were employed in eight publications, as were discursive and terminological analyses. Five literature reviews were included in our review, showing promise for identifying areas of intersectionality and complementarity across disciplines. Least common were focus groups, biophysical or ecological monitoring, and geospatial methods, each of which appeared in only three publications.

3.4. Dominant social-ecological leaning in publications

To further understand patterns across the publications we reviewed

Table 3
Types of approaches used in publications reviewed on homelessness and natural resource management.

Study approach	Number of publications	Example citations
Conceptual	31	Dooling, 2009; A. Gibson, 2019; Thistle, 2017
Interviews	25	Klein & Riemer, 2011; Rose & Wilson, 2019; Vickery, 2018
Ethnography	15	Mokos, 2020; Southard, 1997
Policy or legal study	9	Chamard, 2010; Leonetti, 2019
Survey	8	Baur & Cervený, 2019; Goodling, 2020
Discursive or terminological analysis	8	Algoed & Hernández Torrales, 2019; Speer, 2019
Literature review	5	Bezgrebelna et al., 2021; Mullenbach & Baker, 2020
Focus groups	3	Asah et al., 2012; Donley & Wright, 2012
Biological or ecological monitoring	3	Anderson et al., 2021; Calderón-Villarreal et al., 2022
Geospatial methods	3	Kaplan et al., 2019; MacMurdo et al., 2022
Other	1	

on natural resource management and homelessness, we categorized each publication as having a dominant 'social,' 'ecological,' or 'social-ecological' leaning. It is important to note that all the publications had already met our review criteria of having some engagement with the human dynamics of homelessness and natural environments (see 'review methods' section), so we used the 'social-ecological' category to identify the publications with strong theoretical and empirical integration across coupled SESs. Fig. 2 shows the number of publications per year in the three categories. Overall, our categorization shows that close to two-thirds of publications had a dominant social leaning (64.0 %) and less than two percent had a dominant ecological leaning (1.8 %). The remaining one-third of the articles we reviewed had an integrated social-ecological approach (34.2 %).

We observed an overall increase in publications in recent years that explored the intersections of social and ecological dynamics: more than three-quarters of those we categorized as 'social-ecological' were published between 2016–2023, representing 42 % of the articles published in those years. The ways authors navigated this integrated approach varied, but this trend suggests increased attention to understanding coupled SESs that cannot be understood fully from either a predominantly social or ecological perspective.

3.5. Disciplines and topics represented in publications reviewed

We broadly characterized the dominant disciplinary focus of each of the publications in our review into 11 disciplinary orientations, though we used some categories that are inherently interdisciplinary (e.g., natural resource management, environmental justice, political ecology) (Table 4). The largest disciplinary category was urban studies (30 publications), followed by natural resource management (17), political ecology (13), environmental justice (12), and public health (11).

Many publications built on theoretical frameworks and discussed topics that inevitably bridged disciplines, and developed conceptual and methodological connections across categories. We have presented summaries of five topical focus areas of publications in the subsections that follow, which are intended to illustrate common intersections and patterns across the publications' disciplinary orientations.

3.5.1. A shifting environmental impact narrative

An early reference to homelessness on public lands described the dynamics of diverse cultural values on management in a wilderness-adjacent area with high spiritual values, related to unsanctioned camping and ecological impacts (Fernandez-Gimenez et al., 1992). A later survey conducted by Dickinson et al. (2006) provided insights into ethical dilemmas ecological restoration practitioners encounter when proposed projects would destroy homes or displace people camping in project areas. Since then, a small number of studies has focused on the perceptions of park managers and law enforcement to understand the institutional challenges of natural resource management when facing homelessness in a range of contexts (Cervený & Baur, 2020; Derrien et al., 2023; Neild & Rose, 2018). Studies in our review focused on dynamics in disparate ecologies: riparian areas; public forest land; rural agricultural and ranch lands; urban roadways, parks, other types of green spaces (public and private), waterways and waterfronts, suburban residences, and commercial and industrial (and post-industrial) land; wetlands; and community gardens.

A few publications in our review focused on the effects of homeless inhabitation on indicators of ecosystem health, like water quality and species composition (Verbyla et al., 2021; White, 2013). These studies focused narrowly on the biophysical impacts that homeless encampments have on ecological systems, especially in riparian areas. However, others critiqued this kind of approach, asserting that biophysical impacts should be seen in the context of broader social, political, and economic processes (Bonds & Martin, 2016; Calderón-Villarreal et al., 2022; DeMyers et al., 2017; Devuono-Powell, 2013; Frye et al., 2019; Gomez, 2019). DeMyers et al. (2017) described how water insecurity

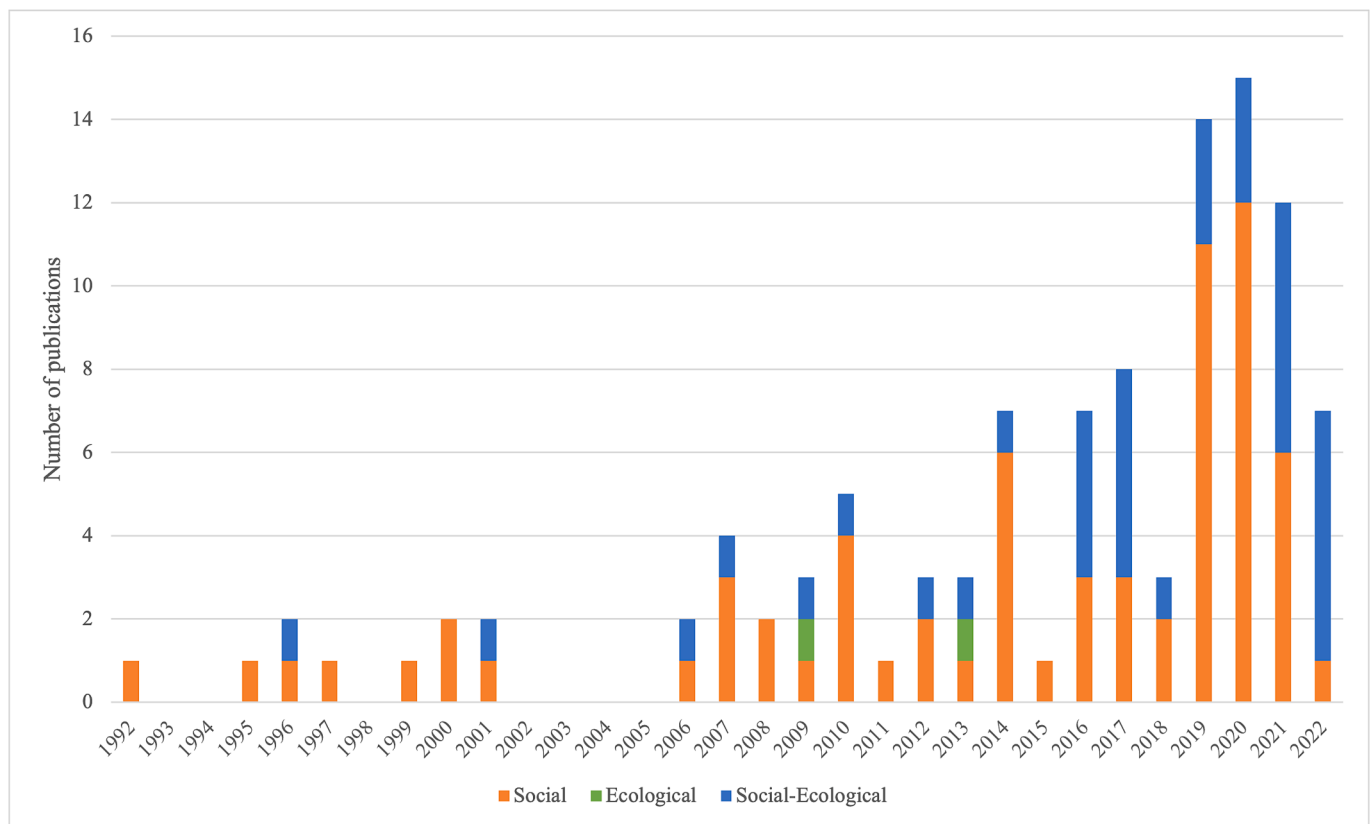


Fig. 2. Dominant social and ecological leaning in publications reviewed (2023 publications are excluded from figure because it was an incomplete year at the time of review).

Table 4

Distribution of publications reviewed on homelessness and natural resource management, across disciplinary orientations.

Dominant disciplinary orientation	Number of publications	Example citations
Urban studies	30	Dooling, 2009; Foster, 2014; Gamble, 2023; Snow & Mulcahy, 2001
Natural resource management	17	Dickinson et al., 2006; Mullenbach & Baker, 2020; Phillips et al., 2009; Verbyla et al., 2021; White, 2013
Political ecology	13	Hagerman, 2007; Rose & Wilson, 2019
Environmental justice	12	Agyeman et al., 2016; Klein & Riemer, 2011
Public health	11	Frye et al., 2019; Holmes, 2006
Indigenous studies	6	Asah et al., 2014; Thistle & Smylie, 2020
Sociology	5	Southard, 1997; Vickery, 2018
Geography	5	Cloke et al., 1999; Speer, 2019
Anthropology	4	Mokos, 2020; Palta et al., 2016
Law	4	Greif, 2021; Leonetti, 2019
Other	4	

due to commodification and the failings of governance affect homeless subpopulations in myriad ways. Furthermore, authors described how such small-scale impacts from homeless dwellings are often far less impactful than structural, residential, and industrial impacts, including stream diversions, non-point source pollution, and climate change; this suggests that homeless dwellings should not only be contextualized within broader systems of pollution, but that ‘pollution’ and ‘contamination’—and our responses to them—should be recognized as infused with complex ideas of nature and society (Rose, 2017). For some authors, pollution is better understood as a feature of structural violence (Calderon-Villarreal et al., 2022). Others observed that a solely

biophysical view obscures the ways homeless people are associated as contaminants themselves in public discourse (Bonds & Martin, 2016). Frye et al. (2019) combated a narrow focus on fecal contamination on a stream by directing the locus of attention towards health of homeless people, framing their research around questions of rights to sanitation dignity.

Recent graduate theses have explored public agency responses to homelessness, particularly in California. Devuono-Powell (2013: 17) reported on a California flood control district’s practices concerning homeless encampments, finding that the agency, which is ‘staffed primarily by engineers, is very well equipped to deal with the environmental and structural challenges of maintaining water quality, [but] it is arguably less equipped to deal with the social challenges posed by the encampments set by the creeks.’ Gomez (2019) similarly noted that although certain impacts fall under municipal agency jurisdictions in Sacramento, California, no one entity had the capacity to address the complex social and environmental issue of homelessness. Doerschlag (2021) interviewed city officials in Santa Cruz, Sacramento, and San Pablo, California, noting that few organizations and programs integrated concerns for water quality with the wellbeing of unsheltered homeless individuals and communities.

Several other authors added nuance to the environmental impact narrative by describing how homeless communities receive beneficial ecosystem services in fringe natural areas while also being exposed to pathogens and poor air quality (Hardenbrook et al., 2022; MacMurdo et al., 2022; Palta et al., 2016). The ecosystem services approach was also used to articulate the natural capital that supports activities such as camping (Asah et al., 2012; Masuda & Crabtree, 2010) and trash collecting (dos Santos, 2007) and situates them as potentially beneficial economic and ecological activities that should be recognized and incorporated into ecological restoration and urban planning processes.

Rigolon et al. (2022) encouraged a consideration of justice in urban

parks, describing the ways homeless individuals face negative interactional and procedural justice outcomes in the planning and management of urban parks, with their focus on environmental impacts. They recommended explanatory studies aimed at the public policy surrounding park management. [Tucker \(2020\)](#) offered one such relevant case study of public land management in Texas, highlighting the high cost of managing homelessness, whether a city emphasized incarceration, shelter, or healthcare. This view was affirmed by [Robinson \(2019\)](#), who also highlighted the ways management of urban homelessness can reduce quality of life and health for the individuals affected despite stated goals to the contrary. [Tucker \(2020\)](#) noted that evictions often exacerbate environmental impacts, though they are difficult to measure. In Texas, the attempt to mitigate these impacts by adapting a 'leave no trace' outreach program to better reach homeless communities, showed promise to address health and safety concerns but required ongoing staff trainings and agency coordination for continued effectiveness ([Tucker, 2020](#)).

3.5.2. Intersections of human and ecosystem health

Public health has traditionally retained a narrow focus regarding homelessness, primarily on human exposures and health outcomes, while situating the biophysical environment more broadly as a determinant of public health. In recent years, public health scholarship has focused on the intersections of human and ecosystem health, moving towards a more integrated view of the social and environmental determinants of health. We observed a trend in recent years of authors using the lens of public health to connect issues of homelessness to climate change, and many noted that climate vulnerabilities are exacerbated by stigma, lack of resources and representation, and exposure to extreme weather and toxics ([Bezgrebelna et al., 2021](#); [Enríquez-Loya & León, 2020](#); [Gibson, 2019](#); [Hale, 2019](#); [Kidd et al., 2021](#); [MacMurdo et al., 2022](#)). For example, [Anderson et al. \(2021\)](#) studied the connections between biophysical and social environments to understand predictors of well-being in people experiencing homelessness, with an emphasis on the effects of changing weather patterns. [MacMurdo et al. \(2022\)](#) studied the local-scale exposures of people experiencing homelessness to mobile and stationary source emissions, suggesting an increase in their vulnerability as air quality deteriorates with climate change. [Holland \(2012\)](#) used an ethics lens to articulate broadly that the capacity for a dignified life for all people relies on a stable ecological and climatic system, especially given the risk of housing insecurity due to environmental disasters. Overall, recent literature reviews have highlighted the literature gaps on the effects of climate change on the prevalence of homelessness, and the vulnerabilities and health outcomes for populations ([Bezgrebelna et al., 2021](#); [Kidd et al., 2021](#)).

Other authors emphasized the outcomes of the interplay between social and ecological systems on human health. For example, [Flanigan & Welsh \(2020\)](#) noted that the competing influence of public health and criminal justice systems can shape the lifestyle dynamics of people experiencing homelessness living in urban waterways, perpetuating subsequent impacts and drivers through the waterway system. [Mokos \(2016, 2020\)](#) linked human and landscape health through an ethnographic approach, elevating the lived experiences of homeless populations to better understand the goals and outcomes of ecological restoration. [Calderón-Villarreal et al. \(2022\)](#) focused on the community scale, tracking human health metrics alongside water quality to situate public health in the context of structural environmental justice. [Goldsmith & Bell \(2022\)](#) suggested the need to study environmental exposures in the LGBTQ + community given that their higher rates of homelessness compared to cisgender, heterosexual populations. [Gabriel et al. \(2022\)](#) described the needs for holistic healing of Indigenous youth who have experienced homelessness, which is explicitly couched in the teachings of the medicine wheel that connects humans to the environment and the cosmos (discussed further below).

3.5.3. Homelessness as an environmental injustice

[Klein & Riemer \(2011: 167\)](#) reflected over a decade ago that, 'the perspectives of people experiencing homelessness are largely missing from our discussions of environmental injustices, which makes it difficult to account for these marginalized experiences in our activism, our research, and our understanding of 'the environment.' More recently, scholars described how the environmental justice field has grown to include a focus on homelessness ([Gamble, 2023](#)). Despite a recognition of myriad data gaps ([Brinkley & Wagner, 2022](#)), there is promise that the field can contribute to understandings of homelessness and natural resource management that are attentive to distributive, procedural, and recognition justice ([Rigolon et al., 2022](#)). For example, in a relatively early paper on the topic, [Lake \(1996\)](#) emphasized that when facing tensions between democratic self-determination and distributive justice in environmental quality issues, like the siting of a homeless shelter, there should be an emphasis on procedural justice.

As noted in the prior subsection, authors described climate change as a driver of homelessness, and that air quality, temperature, and storm events disproportionately worsened exposures and outcomes for homeless populations ([Bezgrebelna et al., 2021](#); [Goodling, 2020](#); [Hardenbrook et al., 2022](#); [MacMurdo et al., 2022](#)). It was noted that media narratives, however, commonly fail to connect climate change and natural disasters with systemic forces, laws and policies, or economic trends ([Goodling, 2020](#)) and moreover often homogenize vulnerable groups ([Klein & Riemer, 2011](#); [Vickery, 2018](#)). [Algoed and Hernández Torrales \(2019\)](#) showed that while natural disasters can lead to predatory investments and land grabs, informal networks of homeless people in Puerto Rico offered grassroots resistance to neoliberal trends, that, as [Holmes \(2006\)](#) noted, can influence the extent and character of homelessness in scales from the local to the global. [Greif \(2021\)](#) employed a legal perspective in proposing a 'Climate Conscious Homeless Bill of Rights' for California that would align federal, state, and local law around an integrated understanding of the vulnerabilities of homeless populations and the impacts of climate change.

Legal reviews added grounding and context to the environmental justice framing. In the United States, local, state, and federal government responses to homelessness are guided by legal mandates and decisions like the 2018 *Martin v. City of Boise* decision (920F.3d 584 (9th Cir. 2019)), which is rooted in the Eighth Amendment to the Constitution. Before being overturned by the recent 2024 Supreme Court decision in *City of Grants Pass v Johnson* (603 U.S. __ (2024)), the *Martin* decision restricted local anti-camping ordinances in municipalities in all states under the jurisdiction of the Ninth Circuit (Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington). Authors in our review contributed arguments tying homelessness to environmental management by pointing to Fourth, Fifth, and Fourteenth Amendment protections ([Chamard, 2010](#); [Leonetti, 2019](#)). For example, [Leonetti \(2019\)](#) explained that understandings of trespassing and land ownership are limited given the ambiguous legal status of encampments as 'homes,' and people's constitutionally protected rights to privacy within them.

But the ambit of environmental justice scholarship extends beyond the letter of the law, and several authors noted that it is also important to understand homelessness through the praxis of law enforcement ([Neild & Rose, 2018](#)). For example, police grapple with questions of jurisdiction and approach in parks and other public natural spaces, while homeless populations often experience ongoing exclusion and stigmatization through local ordinances ([Calderón-Villarreal et al., 2022](#); [Chamard, 2010](#); [Robinson, 2019](#); [Stuart, 2014](#)).

3.5.4. Environmental gentrification and spatial dimensions of homelessness

Spatial understandings of homelessness have mostly focused on urban natural landscapes. Authors have observed that intersections of homelessness and environmentalism have been poorly articulated in scholarship on urban sustainability ([Goldfischer, 2020](#); [Mitchell, 1995](#); [Zeemering, 2014](#)), housing ([Bhatti, 2001](#)), and the use of varied public

spaces (Parker, 2021; Snow & Mulcahy, 2001). Urban studies scholarship has recognized green spaces and waterways as potential sites of belonging, healing, and refuge from the negative aspects of urban capitalist approaches to property (Flanigan & Welsh, 2020; Herring, 2014; Koprowska et al., 2020; Masuda & Crabtree, 2010; Noe & Stolte, 2023; Speer & Goldfischer, 2020). Even novel ecosystems, such as urban wetlands, can potentially be a source of resilience for these communities (Palta et al., 2017). Urban ecology has been offered as a way to illuminate relations of space, power, and control in natural resources management (Goldfischer, 2020). Venturini et al. (2019) stressed that expansion of social services for homeless populations should better consider spatial-ecological principles and impacts to adequately meet visions for equity.

Some have cautioned that ecological restoration, especially in association with urban redevelopment regimes, could be wielded as a means towards social control and exclusion (Bell et al., 2019; Goldfischer, 2020; Hagerman, 2007; McKendry & Janos, 2015; Mullenbach & Baker, 2020; Sandberg, 2014). In her exploration of homelessness in public green spaces, Dooling (2009) explored 'ecological' or 'green' gentrification in urban planning to highlight ideological tensions in 'who' and 'what' belongs where across various demographic factors; she emphasized class and sovereign powers. These tensions can result in the displacement or exclusion of people experiencing homelessness from public green spaces because of environmentally motivated 'cleansing' and improvements, and the activation of NIMBY networks (Bonds & Martin, 2016; Koprowska et al., 2020; Rose, 2017; Speer, 2019; Speer & Goldfischer, 2020).

The parks and recreation management literature has begun to explore the environmental gentrification impacts of park management policy. Wolch et al. (2014) noted that while increasing urban green space is generally seen as a public good, it can perpetuate divides of class and privilege. Mullenbach & Baker (2020: 432) explained that '[w]hen cities construct or renovate new parks, trails, and other green spaces...it can cause or perpetuate environmental gentrification.' They presented a systematic review that highlighted the paucity of literature on environmental justice in leisure studies, and they encouraged further innovation of gentrification policy and research. They discussed that while not all gentrification outcomes are negative, the benefits are not evenly distributed and community involvement is crucial to avoid policies like rezoning or tax incentives that amplify impacts like displacement of people experiencing homelessness from parks.

To illustrate the cultural politics of ecological restoration in its ability to remake place, some scholars investigated how 'sense of place' can be mobilized in regimes of neoliberal finance (Agyeman et al., 2016; Foster, 2010; Gabriel, 2016; O'Neill, 2010), as well as class-based aesthetics and social norms (Audell, 2020; Bula, 2021; Rose, 2020; Speer, 2019). To study this dynamic, authors have employed Actor Network Theory (Rose & Wilson, 2019), and multispecies approaches (Heise & Christensen, 2020). Mokos (2016, 2020) provided an embedded investigation of restoration and homelessness, using a feminist framework to challenge the ways that restorationists and social service providers each employ limited assumptions about people, nonhuman organisms, and power in and around ecological restoration projects. She cautioned that restoration can contribute to epistemic and physical exclusion and encouraged a view of 'therapeutic landscapes' to better include the lived experiences of the unhoused (Mokos, 2020).

Geographers such as DeVerteuil et al. (2009) encouraged greater nuance in spatial understandings of urban environments, emphasizing how even beyond well-known punitive and revanchist approaches, there are 'ambivalent' and 'incoherent' responses to homelessness that can perpetuate it. Contributions from urban landscape architecture offered opportunities for participatory design and mapping with homeless communities as a way to improve their lives (He, 2018; Scoccimaro, 2021). If seen this way as part of unique socio-ecological formulations, studies of urban homelessness can better inform urban sustainability (Foster, 2014).

Collaborative approaches are increasingly recognized as crucial and effective ways for addressing complex, transboundary, and integrated environmental justice and sustainability challenges. Some authors highlighted the potential to address their intersections with homelessness by fostering inclusivity and systems thinking (Amster, 2008; Flanigan, 2024). Dale & Newman (2010) mobilized a 'social capital' framing to articulate the various forms of value that are important for community-wide sustainability projects. Narain & Agarwal (2007) similarly asserted the value of articulating social and natural capital side by side in their assessment of ecological poverty and democracy. Tucker (2020) noted that in local governance, if homelessness is addressed only through incarceration, shelters, or healthcare, it is extremely costly. This suggests a need to improve collaborative capacities in this intersection. Some scholars have discussed how ecological restoration and community gardens can provide a way to develop connections between environmental groups and social services providers (Irvine et al., 1999). For example, a pilot program called 'Restoration not Incarceration' highlighted how reciprocal restoration models can help heal and provide workforce development for those released from the carceral system, and who might otherwise become homeless (Norton et al., 2013).

3.5.5. Indigenous homelessness

A relatively small but significant narrative reframe has emerged in the work of Indigenous scholars and advocates on homelessness. Several recent books and articles have reframed homelessness in the context of Indigenous issues (Christensen, 2017; Peters et al., 2016; Thistle, 2017; Thistle & Smylie, 2020). These scholars described how in Canada, New Zealand, and Australia there are disproportionate numbers of Indigenous homeless people in their own traditional homeland, signaling the fundamental shift that colonial and neoliberal forces have had on the people and land.

Thistle (2017) built on this foundation in redefining Indigenous homelessness as a set of 12 dimensions derived from a composite lens of Indigenous worldviews that situate home as a set of relationships between the people, the land, and cultural practices (Thistle, 2017; Thistle & Smylie, 2020). Christensen's (2017) book pointed to a variety of drivers of homelessness, including colonial legacies and neoliberal policies, to critique dominant narratives of urbanism. Vasquez (2019) used a legal analysis to connect higher rates of homelessness explicitly to the dispossession and exclusion of Indigenous people and practices, namely anthropogenic fire, on public lands. Riley & Carpenter (2021) connected homelessness to patterns of international migration, which they in turn ground in an understanding of colonial extraction and displacement of Indigenous peoples. They argue that a commitment to Indigenous rights would recognize their connections to the natural world and transboundary lifeways, which could encourage migration reform in settler-colonial states. Mello (2017) provided a complementary case study of homeless Native Hawaiians and advocates asserting land tenure to support visions of Indigenous sovereignty and sustainability. These conceptions of homelessness are radically different from many of the aforementioned Western approaches to scholarship, and the integrated worldview of social and ecological relations offers a suite of cross-cutting implications that other disciplines have not yet recognized.

4. Discussion

4.1. Trends and gaps to inform future research

This literature review described patterns in the academic study of homelessness and natural resource management between 1992 and 2023. We found a trend of increased attention to this topic (Fig. 1) and an increased integration of social and ecological considerations (Fig. 2). Here we return to a discussion of SESs and other lineages of sustainability and natural resource management studies, elevating exemplary literature from our review while bringing key gaps and opportunities to the foreground.

4.1.1. Confronting the human-nature dualism

It is evident through this review that a SES framing offers many opportunities to span disciplines, diversify methodologies, and more attentively reflect complex social-ecological dynamics in the scholarly literature on homelessness and natural resource management. West et al. (2020, p. 305) point out, however, that even SES perspectives can ‘remain captive to paradigmatic assumptions that implicitly reproduce a separation between humans and nature.’ Many scholars continue to assert that both environmental governance and Western academic inquiry must first confront their roots in the nature-culture dualism and instrumentalization of resources, to avoid perpetuating the very social-ecological degradation they aim to allay (Folke et al., 2003). West et al. (2020) have outlined the trends of a ‘relational turn’ seen across the sustainability sciences, in which scholars attempt to more effectively recognize human-nature embeddedness in both their theoretical foundations and research methodologies. Raymond et al. (2021) has supported this ‘turn’ through a series of reflexive questions about the ways to thoughtfully assess leverage points and interventions for systems change that advance relational thinking more pragmatically in both research and practice.

The persistent human-nature dualism in Western academic literature (Castree, 2003; West et al., 2020) was observable in our literature review. However, some authors offered dynamic and innovative approaches to advance a more integrated view of human and natural systems at the intersection of homelessness and natural resource management. For example, ethnographic approaches conducted by Calderón-Villarreal et al. (2022), Goldfischer (2020), Mokos (2016, 2020), and Rose (2017) illuminated the intricacies of assemblages of ideologies and material practices that manifest in particular cases of natural resource and social management. The richness revealed through these studies has enabled dialogue across other disciplines and better represents the breadth and complexity of homelessness-environment relations. Vickery’s (2018) social-intersectional approach similarly facilitated multi-disciplinarity by elevating complex lived experiences, enabling better environmental justice interventions. Rose & Wilson (2019: 403) exemplified a theoretical commitment to fluid and integrated systems, pointing out how popular and dominant narratives often fail to recognize the agency of homeless individuals as ‘always already co-constituted with various socionatural assemblages’ of actors, discourses, and power relations. This recognition of dominant narratives that homogenize both homeless populations and nature recall the analyses put forth by scholars like Carolyn Merchant, who traced the intertwined paths of the subjugation of nature and the subjugation of people during the period of scientific enlightenment (Merchant, 1990). Daston & Vidal (2004, p. 2) point out that this dynamic allows the ‘smuggling’ of certain notions across the boundary between society and nature, which often serve to shore up a social convention or political arrangement as ‘irrevocable or optimal or both.’ Feminist critiques have extended this call to see ontologies and systems as historically situated and contested. In focusing on marginalized and divergent perspectives of homelessness, Goldsmith & Bell (2022) echo Haraway’s (2008: xxiii) invitation towards ‘queering’ traditional sciences by undoing dominant categories of ‘normal,’ to better recognize the world as ‘sympiogetic naturecultures, with no stopping point.’

But despite the promise of the larger ‘relational turn,’ some have criticized West et al. (2020) for their continued bias in foregrounding Western ontologies. Gallegos-Riofrio et al. (2022: 481) highlighted the wealth of Latin American and Indigenous scholarship and epistemologies that have retained the embeddedness of human and natural systems as a philosophical foundation from which ‘modern societies should never have diverged.’ Contributions from Indigenous scholars in our literature review exemplified this point. Scholarly attention to Indigenous homelessness provides an important holistic reframing that departs from academic tendencies to separate inquiries between disciplines and treat people as individuals apart from systems. The few authors in our review that articulated Indigenous perspectives forwarded radically

integrated views of environmental and social issues that created room for novel sustainability interventions (Christensen, 2017; Peters et al., 2016; Thistle, 2017; Thistle & Smylie, 2020). We see great opportunity to extend this research, which will require not just greater support for Indigenous-led research methodologies, but also increased attention to the dynamics of settler-colonial practices that have created these issues. Increased reflexivity and positionality statements from researchers who operate within the settler-colonial paradigm would contribute to a recognition of the white and settler biases that have historically shaped academic literature (Bourke, 2014; Cheng & Randall-Parker, 2017).

Overall, the relatively small amount of research activity surfaced in our literature review—especially of studies with integrated social-ecological approaches—presents opportunities to increase interdisciplinary, collaborative research that also has important practical implications for natural resource and social service professionals. Seventy-one publications (64.0 %) in our literature review were categorized as ‘predominantly social,’ compared to just 2 (1.8 %) that were categorized as ‘predominantly ecological’ (Fig. 2), suggesting that even when homelessness and natural resources approaches were discussed together, there is a bias towards social theory and methods. This is consistent with ongoing critiques of SES approaches about the adequate representation of ecological dynamics and metrics (Vogt et al., 2015).

Interdisciplinary fields such as political ecology introduce a systems lens for human-nature dynamics, while also attending to the rights and agency of individuals. Authors in our review used a political ecology lens to better understand the intersections of policy, economies, ecological and human health, across varying worldviews (Foster, 2010; Hardenbrook et al., 2022; Vickery, 2018). Many used the field’s characteristic philosophical and methodological creativity to address SESs as ‘complex and power-laden spaces,’ and describe environmental degradation through a site-based analysis of power, politics, history, and equity across multiple scales (Osborne et al., 2021: 2). Mixed-method approaches in political ecology can meaningfully incorporate social data and biophysical assessments and draw them into conversation through a SES lens. This can help us understand their particular drivers of environmental issues beyond the dominant narratives of modernity (Blaikie & Brookfield, 1987). But as we observed, the representation of biophysical data tends to lag behind social data even in mixed-method approaches. To better represent ecological phenomena, critical physical geography has been proposed as a new analytic and field (Lave et al., 2018), that offers ‘critical attention to power relations with deep knowledge of biophysical science or technology in the service of social and environmental transformation’ (Lave et al., 2014, 2).

4.1.2. Scale and space beyond the city

Urban studies was the discipline most commonly represented in the publications we reviewed (~27 %) (Table 4). In these publications we encountered valuable discussions of the ideological lineages present in urban planning of public green space, with authors like Koprowska et al. (2020) arguing for greater analysis of homelessness through an environmental justice lens. We observed that the complexity of urban social dynamics can often compound the difficulty of a SES analysis. In their incisive discussion of urban biodiversity and care ethics, Arcari et al. (2021: 954) described how ‘urban-based research focuses on ameliorating the symptoms of biodiversity loss at a local level while off-staging and thereby depoliticizing larger-scale cause.’ Market forces were one such structure and force that was largely off-stage across the review, though a subset of publications in our review did consider the influence of markets in the dynamics of homelessness (Algoed & Hernández Torales, 2019; Gabriel, 2016; McKendry & Janos, 2015; O’Neill, 2010; Rose, 2017; Sandberg, 2014; Speer, 2017, 2019). Political ecology approaches employed across this review provide a home for such explorations, and some authors presented case studies that were exemplary in their attention to broader exogenous and endogenous market forces (e.g., Bonds & Martin, 2016; Foster, 2010, 2014; Hagerman, 2007; Palta et al., 2017).

Despite these exemplary studies, there remain questions of the relevant analytical scale for studying the effects of homelessness in systems including public natural areas. Legal dynamics cross municipal, district, and national scales and create tensions for natural resource managers and public officials alike. The *Grants Pass* decision held that municipal camping bans do not constitute cruel or unusual punishment, in part because unlike what *Martin* argued, the government is not criminalizing a status, but rather a set of activities; it also disputed the notion of ‘involuntary’ homelessness that *Martin* relied on. The majority noted: ‘Homelessness is complex. Its causes are many. So may be the public policy responses required to address it’ (603 U. S. (2024), 5). This essentially turns governance decisions back to states and municipalities. Given the implications on local governments, we encourage study of the cross-scalar legal dynamics described in this review, with increased attention towards integrating national, state, and local environmental law and policy.

The complexity of homelessness that *Nooe & Patterson* (2010) observe is largely social and does not directly focus on biophysical ecosystem function, despite their description of the ‘ecology’ of homelessness. Nevertheless, they offered an important systems view of complex civic and social dynamics regarding the question of scale (*Nooe & Patterson*, 2010: 106):

‘The goal is to transcend the classic debate that posited homelessness as the result of either individual or structural factors (Burt, Aron, Lee, & Valente, 2001; Fisher & Breakey, 1991; Calsyn & Roades, 2006; United States Conference of Mayors, 2007). Though framing the debate of the origins of homelessness within this artificial causal dichotomy may have served political and policy objectives, this reductionism does not advance an etiological understanding of homelessness reflective of the phenomenon’s actual complexity nor does it foster robust, multi-systemic response options from communities, agencies, organizations, and practitioners.’

Some authors noted the risks of the city-scale focus seen across much of the homelessness scholarship. An early study by *Cloke et al.* (1999) encouraged the integration of rural studies with homelessness studies, emphasizing that greater attention must be paid to the spatial geographies that drive and often obscure rural homelessness, as well as to the normalized conceptions, practices, and discourses around homelessness and rurality that can disguise important linkages. *Young’s* (2021) book offers important historical context to the complex histories of camping on public lands often situated in rural geographies. While *Southard’s* (1997) typology provided an important foundation for attention to rural homelessness, future studies would benefit from an increased attention to SES concepts.

4.1.3. Growing towards an ecosystem of disciplines

Public health studies also present potential for data-driven research that include human and ecological metrics. A ‘political ecology of health’ has been advanced by *King* (2010) and *Jackson & Neely* (2015) in order to recognize social-environmental interactions around disease, and in recent years it has been recognized as a robust subfield of geography research (*Nichols & Del Casino Jr*, 2021). Several publications in our review showed promise in addressing climate change, health, and homelessness through an environmental justice lens (e.g., *Anderson et al.*, 2021; *Gibson*, 2019; *MacMurdo et al.*, 2022; *Palta et al.*, 2017). The COVID-19 pandemic led to increases in homeless populations and the challenges they face, many of which remain years later (*de Sousa et al.*, 2023). Initial influxes in relief funding led to the development of novel programs like the Sacramento Homelessness COVID-19 Response Program, which showed promise of integrating social and environmental concerns (*Doerschlag*, 2021), but many protections and funding streams were temporary. We encourage further such collaboration between natural resource management, social service, and public health scholars focused on homelessness.

Ecological restoration scholarship also points to an important nexus

with homelessness. It has been argued that ecological restoration can combat the drivers of homelessness and support equitable development by focusing on ecosystem services and natural capital (*Aronson et al.*, 2006). While historically ecological restoration emphasized ecological integrity and historical fidelity, today it is commonly recognized that traditional ecological restoration practices are limited in the face of complex social-ecological issues (*Osborne et al.*, 2021; *Palomar*, 2010). Although many have touted its potential to offer a positive practice for expressly recognizing humanity’s interaction and involvement with natural systems (*Higgs*, 2003, 1997; *Jordan*, 1993), when armed primarily with conventional technocratic frameworks and mental models, practitioners and managers are often caught in the fray of the complexity without the tools necessary to address the root causes of degradation, let alone the complex systems challenge of homelessness (*Phillips et al.*, 2009). For example, the way some scholars have understood issues like pollution for solely their ecological implications limits the ways organizations define homelessness as a problem and create solutions.

For practitioners, these concepts are manifested in distinct material implications in everything from budgets, staff roles, jurisdictions, to the interpersonal dynamics of ground-level interactions between managers and homeless individuals (like the engineers mentioned by *Devuono-Powell* (2013), whose professional training was limited in the face of the social challenges). Many studies we reviewed were spurred by a need amongst land and natural resource managers to better understand the challenges they face and develop actionable solutions. In this nexus, even apparently singular issues, like litter and water quality, are evidently bound up in complex social and ecological systems. This complexity can tax the capacities of practitioners and stretch them beyond their professional training and role, and the typical resources and organizational partners they have access to. The *National Recreation and Park Association* (2017) reported that only about half of local government park and recreation agencies coordinated across sectors and agencies in their response to homelessness, suggesting a large unmet need for integrated support. At the organizational level, siloed mission statements can create a reliance on biophysical, and moreover single-discipline, understandings, tools, and responses to the dynamics and drivers of homelessness, which in turn narrows the range of potential solutions (*Derrien et al.*, 2023; *Flanigan*, 2024). Expanded conceptions of resource degradation, offered by some researchers in this review (e.g., water in *DeMyers et al.* (2017) and *Hale* (2019); public space in *Kaplan et al.*, (2019); ancestral plant food and medicine in *Vasquez* (2019); and species rights in *Heise & Christensen* (2020)), have the potential to increase organizational capacity by clarifying the problem and the necessary skills to address it, and we encourage the investigation of pathways towards institutionalizing these expanded notions.

Lastly, we see opportunities for case studies of local, regional, and national media, to illuminate the ways that media shapes and is shaped by conceptions of nature, homelessness, and environmental management. *Snow & Mulcahy* (2001) investigated media narratives in newspaper reports, but our review did not uncover many other publications that studied media narratives directly. Several authors, though, emphasized the ways public discourse affects the intersection of homelessness and natural resource management (e.g., (*Algoed & Hernández Torrales*, 2019; *Bonds & Martin*, 2016; *Gabriel*, 2016; *Rose & Johnson*, 2017; *Speer*, 2017).

4.2. Developing an integrative social-ecological research agenda on homelessness

In recent years, natural resource researchers and practitioners have looked to collaborative, landscape-scale conservation and stewardship practices to build the relationships, knowledge, and solutions needed to make headway in meeting a diversity of social-ecological challenges (*Ansell & Gash*, 2008; *Bixler et al.*, 2016; *Clement et al.*, 2020; *Guerrero et al.*, 2015; *Koontz & Thomas*, 2006; *Margerum*, 2008; *Scarlett &*

McKinney, 2016). This perspective offers a pathway forward for the study of homelessness across disciplines and on urban and rural landscapes with multiple scales of governance. SES perspectives like those in the landscape sciences are well poised to help bridge the gaps we have observed through our review and merit additional application to research studies. Landscape science and conservation draw from a lineage focusing on ecology and land protection, and increasingly consider humans as potentially beneficial actors in an ongoing relationship with the land (Bennett et al., 2018; Enqvist et al., 2018; Heller et al., 2023).

A valuable activity to coordinate research that bridges these gaps is for scholars, practitioners, and people with lived experiences of homelessness to co-produce an integrative research agenda. Informed by our literature review, a research agenda could direct and support increased coordination among social, ecological, and health researchers for systems-oriented investigations ranging from the effects of climate change to ecological restoration on homeless populations. The development of an integrative social-ecological research agenda on homelessness could support greater recognition of the heterogeneity of subpopulations and the settings they use. This is crucial to resisting the reductive, generalizing portrayals of homelessness that can perpetuate marginalization and othering, and advancing more attentive, multi-dimensional analyses. It could also help inform strategies, such as those focused on crime prevention, to become more ecologically attentive and systems oriented; for example, vegetation management practices intended to decrease use by homeless populations in certain areas could be designed such that strategies do not also inadvertently impede ecosystem function or simply displace users to riskier locations (Derrien et al., 2023; Neild & Rose, 2018).

In developing a research agenda, a 'relational turn for the sustainability sciences' offers inspiration for pursuing 'more holistic, dynamic analyses of human-nature connectedness' and 'new domains and approaches for sustainability interventions' (West et al., 2020: 316). A less dualistic view of social-ecological issues would complement the more incisive literature reviewed here. Klein & Riemer (2011: 196), for example, highlight the need to clarify and confront the 'artificiality of the boundaries we have drawn between 'environmental' and 'social' issues' by way of emphasizing heterogeneity in people and ecosystems and continuing to investigate our categories and tactics. Given the divides between organizations that focus primarily on either ecological or social issues (despite jointly experiencing the effects of homelessness), the research agenda would also benefit from a focus on the effectiveness of collaborative governance solutions in addressing homelessness in natural resource management contexts (Eaton et al., 2022).

We caution, however, that in fostering the interdisciplinary teams needed for such work, an increased consideration of ethics in research focused on vulnerable populations is needed, including the needs for researcher training and reflexivity (Wilmer et al., 2021). The engagement of people with lived experiences of homelessness in such co-production hinges on inclusive participatory practices designed to create meaningful outcomes for all those involved (Shannon et al., 2021). These outcomes may be very different for the participants engaged, ranging from improved living conditions, to new agency policies, to new scientific knowledge disseminated in research publications. Shah et al. (2018) have provided important conceptual, ethical, normative, and methodological considerations for interdisciplinary research focused on social-ecological transformations, emphasizing the need to measure interventions and transformations in inclusive, just, and equitable ways. For example, Mertens (2021) described 'Transformative Research Methods' that include vulnerable groups, address power inequities, and encourage critical examination of researcher roles in the design, implementation, and use of research to forward social, economic, and environmental justice. This latter perspective highlights the importance of understanding what prior research across disciplines has found about the vulnerabilities of homeless populations and incorporating sensitivities into interdisciplinary study designs.

To this end, we encourage that the research agenda-setting process and research questions be built around participatory processes that engage people with current or previous experiences of living in public or privately conserved natural areas, since their local knowledge will be necessary for designing feasible research and informing interventions that could prove to be durable and just (He, 2018; Scoccimaro, 2021). Since this population is challenged by unstable living conditions and access to communications infrastructure, their engagement will likely require outreach and supports less typical for such agenda-setting endeavors.

We also encourage strong connections to communities of practitioners directly engaged with the dynamics of homelessness in their work. Pricope et al. (2020) describe the conditions that help develop a collaborative, interdisciplinary community of practice working towards applied transboundary environmental governance and sustainability outcomes, emphasizing points of engagement among practitioners and researchers. Positional reflexivity can improve coordination across professional roles. For example, Cheng & Randall-Parker (2017) present a dialogue between a practitioner and scholar in the context of evaluating a collaborative forest restoration project. This model offers insight into techniques for disclosing and honoring epistemological differences, assumptions, motivations, and power towards greater co-production of knowledge in collaborative natural resource management.

We draw inspiration from the foundation introduced by Abdel-Samad et al. (2021), whose collective impact model demonstrates potential for the coordination of research and action to address homelessness, organized around mutually reinforcing activities and shared metrics. Their model is organized around eight primary disciplines: public health; social work; public administration; political science; economics; city planning; civil and environmental engineering; environmental design; and music and fine arts. Our review affirms the need that Abdel-Samad et al. (2021) see to bridge academic disciplines and practice, and we encourage the addition of a SES lens that can be connected across each named discipline, such that environmental and natural resource issues are recognized endogenously within each discipline.

4.3. Study limitations

In our choice to focus broadly on SES in framing our research, we risk generalizing the diversity of theoretical formulations in the academic literature, and therefore eliding crucial, complex internal debates. We nonetheless hope that our intention to use broad SES framing to speak across these debates serves to prompt, rather than fragment, further dialogue.

Our literature review methods introduced a few limitations. Because of our training and disciplinary backgrounds, our knowledge and vocabularies are biased toward environmental and natural resource management, which may have led us to miss some relevant publications, especially those with a stronger social service or public health orientation. While we attempted to use a wide range of search terms to identify publications of interest, and used an iterative process that allowed us to identify additional articles our search terms had missed, there are likely publications that we overlooked. Relatedly, our categorization of publications into their dominant disciplinary perspective, study approach, and social/ecological leaning was informed by our own disciplinary interpretations and backgrounds. While this categorization was essential to describing patterns across the literature, it was ultimately more reductive than would be ideal. We worked together to create and apply well-defined and consistently applied categories, but their occasionally blurry boundaries introduced some unavoidable subjectivity. Finally, the categorization of books in our review received a less thorough consistency check (one reader instead of two) because of our capacity limitations. For these and other reasons, a team developing a research agenda would benefit from contributors with more diverse disciplinary backgrounds than our own to help navigate the breadth of literature and the integrative approaches possible in collaborative research designs.

5. Conclusions

This article presented the findings of a narrative literature review of the intersections of homelessness and natural resource management across a variety of disciplines. Issues at these intersections pose as challenges to contemporary scientific study and management practices, with crucial gaps remaining within and between disciplines and sectors. However, we also observed that a rising tide of attention—notably in research oriented towards environmental justice, public health, and Indigenous studies—offers important methodological and conceptual innovations that promise to better confront and address SESs as integrated, fluid, and dynamic.

Our work seeks to make these trends visible, so as to encourage further scholarly attention to the material conditions that underly this discussion and the lived experiences of land managers, public officials, service providers, and homeless individuals. Understanding these trends and experiences alongside the concurrent intensification of environmental and social crises is ever more timely and important.

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CRedit authorship contribution statement

Seamus R. Land: Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Monika M. Derrien:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.landurbplan.2024.105254>.

Data availability

Data will be made available on request.

References

- Abdel-Samad, M., Calzo, J. P., Felner, J. K., Urada, L., Verbyla, M. E., Madanat, H., Adams, B. E., Alves, T., Appleyard, B., Chanin, J., Flanagan, S., Foad, H., Ginsberg, M., Higgins, M., Ko, E., Maher, K., Mladenov, N., Peattie, P., Welsh, M., & Sleet, D. (2021). Conceptualizing an interdisciplinary collective impact approach to examine and intervene in the chronic cycle of homelessness. *International Journal of Environmental Research and Public Health*, 18(4). <https://doi.org/10.3390/ijerph18042020>
- Aboelela, S. W., Larson, E., Bakken, S., Formicola, A., Glied, S. A., Haas, J., & Gebbie, K. M. (2007). Defining interdisciplinary research: Conclusions from a critical review of the literature. *Health Services Research*.
- Agyeman, J., Schlosberg, D., Craven, L., & Matthews, C. (2016). Trends and directions in environmental justice: From inequity to everyday life, community, and just sustainabilities. *Annual Review of Environment and Resources*, 41(1), 321–340. <https://doi.org/10.1146/annurev-environ-110615-090052>
- Algoed, L., & Hernández Torrales, M. (2019). The land is ours. Vulnerabilization and resistance in informal settlements in Puerto Rico: Lessons from the Caño Martín Peña Community Land Trust. *Radical Housing Journal*, 1(1), 29–47. <https://doi.org/10.54825/MOVK2096>
- Amster, R. (2008). Lost in space the criminalization, globalization, and urban ecology of homelessness. *LFB Scholarly Publishing*.
- Anderson, M.-C., Hazel, A., Perkins, J. M., & Almquist, Z. W. (2021). The ecology of unsheltered homelessness: Environmental and social-network predictors of well-being among an unsheltered homeless population. *International Journal of Environmental Research and Public Health*, 18(14), 7328.
- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research & Theory*, 18(4), 543–571. <http://ezproxy.library.utoronto.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=34725965&site=ehost-live>
- Arcari, P., Probyn-Rapsey, F., & Singer, H. (2021). Where species don't meet: Invisibilized animals, urban nature and city limits. *Environment and Planning E: Nature and Space*, 4(3), 940–965.
- Aronson, J., Clewell, A. F., Blignaut, J. N., & Milton, S. J. (2006). Ecological restoration: A new frontier for nature conservation and economics. *Journal for Nature Conservation*, 14(3), 135–139. <https://doi.org/10.1016/j.jnc.2006.05.005>
- Asah, S. T., Blahna, D. J., & Ryan, C. M. (2012). Involving forest communities in identifying and constructing ecosystem services: Millennium assessment and place specificity. *Journal of Forestry*, 110(3), 149–156.
- Asah, S. T., Guerry, A. D., Blahna, D. J., & Lawler, J. J. (2014). Perception, acquisition and use of ecosystem services: Human behavior, and ecosystem management and policy implications. *Ecosystem Services*, 10, 180–186. <https://doi.org/10.1016/j.ecoser.2014.08.003>
- Audell, A. E. (2020). *One (Wo)Man's Trash Is Another (Wo)Man's Treasure: A Visual Exploration of Homeless Space-Making Through the Lens of Material Culture* [Master's thesis, California State University, Long Beach]. <https://www.proquest.com/dissertations-theses/one-wo-mans-trash-is-another-treasure-visual/docview/2444658648/se-2?accountid=28147>
- Baur, J. W., & Cerveny, L. (2019). Social impacts of homelessness and long-term occupancy on national forests and grasslands: A national study of US Forest Service law enforcement officers. *Landscape and Urban Planning*, 184, 69–77.
- Bell, S. L., Leyshon, C., Foley, R., & Kearns, R. A. (2019). The “healthy dose” of nature: A cautionary tale. *Geography Compass*, 13(1), e12415.
- Bennett, N. J., Whitty, T. S., Finkbeiner, E., Pittman, J., Bassett, H., Gelcich, S., & Allison, E. H. (2018). Environmental stewardship: A conceptual review and analytical framework. *Environmental Management*, 61, 597–614. <https://doi.org/10.1007/s00267-017-0993-2>
- Bezgrebelna, M., McKenzie, K., Wells, S., Ravindran, A., Kral, M., Christensen, J., Stergiopoulos, V., Gaetz, S., & Kidd, S. A. (2021). Climate change, weather, housing precarity, and homelessness: A systematic review of reviews. *International Journal of Environmental Research and Public Health*, 18(11), 5812. <https://doi.org/10.3390/ijerph18115812>
- Bhatti, M. (2001). Housing/futures? The challenge from environmentalism. *Housing Studies*, 16(1), 39–52. <https://doi.org/10.1080/02673030020015119>
- Bixler, R. P., Johnson, S., Emerson, K., Nabatchi, T., Reuling, M., Curtin, C., Romolini, M., & Grove, J. M. (2016). Networks and landscapes: A framework for setting goals and evaluating performance at the large landscape scale. *Frontiers in Ecology and the Environment*, 14(3), 145–153. <https://doi.org/10.1002/fee.1250>
- Blaikie, P. M., & Brookfield, H. C. (1987). *Land degradation and society*. Methuen.
- Bonds, E., & Martin, L. (2016). Treating people like pollution: Homelessness and environmental injustice. *Environmental Justice*, 9(5), 137–141. <https://doi.org/10.1089/env.2016.0021>
- Bourke, B. (2014). Positionality: Reflecting on the research process. *The Qualitative Report*, 19, 1–9. <https://doi.org/10.46743/2160-3715/2014.1026>
- Briassoulis, H. (2017). Response assemblages and their socioecological fit: Conceptualizing human responses to environmental degradation. *Dialogues in Human Geography*, 7(2), 166–185. <https://doi.org/10.1177/20438206177220079>
- Brinkley, C., & Wagner, J. (2022). Who is planning for environmental justice—And how? *Journal of the American Planning Association*, 90(1), 63–76. <https://doi.org/10.1080/01944363.2022.2118155>
- Bula, S. (2021). *The Dismantling of the Santa Ana Riverbed Homeless Encampment in 2018: A Case Study* [Master's thesis, Harvard University]. <https://nrs.harvard.edu/URN-3:HUL.INSTREPOS:37369090>
- Calderón-Villarreal, A., Terry, B., Friedman, J., González-Olachea, S. A., Chavez, A., Díaz López, M., Pacheco Bufanda, L., Martínez, C., Medina Ponce, S. E., Cázares-Adame, R., Rochin Bochm, P. F., Kayser, G., Strathdee, S. A., Muñoz Meléndez, G., Holmes, S. M., Bojorquez, I., Los Huertos, M., & Bourgois, P. (2022). Deported, homeless, and into the canal: Environmental structural violence in the binational Tijuana River. *Social Science & Medicine*, 305, Article 115044. <https://doi.org/10.1016/j.socscimed.2022.115044>
- Carlton, J. (2023). *A Montana Town Faces a Homelessness Problem Similar to San Francisco and L.A.* <https://www.wsj.com/business/hospitality/a-montana-town-faces-a-homelessness-problem-similar-to-san-francisco-and-l-a-eba26824>
- Castree, N. (2003). Commodifying what nature? *Progress in Human Geography*, 27(3), 273–297.
- Cerveny, L. K., & Baur, J. W. (2020). Homelessness and nonrecreational camping on national forests and grasslands in the United States: Law enforcement perspectives and regional trends. *Journal of Forestry*, 118(2), 139–153.
- Chamard, S. (2010). *Homeless Encampments* (56; Problem-Oriented Guides for Police). US Department of Justice.
- Cheng, A. S., & Randall-Parker, T. (2017). Examining the influence of positionality in evaluating collaborative progress in natural resource management: Reflections of an academic and a practitioner. *Society & Natural Resources*, 30(9), 1168–1178. <https://doi.org/10.1080/08941920.2017.1295493>
- Christensen, J. (2017). *No home in a homeland: Indigenous peoples and homelessness in the Canadian North*. UBC Press.
- Clement, S., Guerrero Gonzalez, A., & Wyborn, C. (2020). Understanding effectiveness in its broader context: Assessing case study methodologies for evaluating collaborative conservation governance. *Society & Natural Resources*, 33(4), 462–483. <https://doi.org/10.1080/08941920.2018.1556761>

- Cloke, P., Milbourne, P., & Widdowfield, R. (1999). Homelessness and rurality: 'Out-of-place' in purified space? *Environment and Planning D: Society and Space*, 18, 715–735.
- Dale, A., & Newman, L. (2010). Social capital: A necessary and sufficient condition for sustainable community development? *Community Development Journal*, 45(1), 5–21. <https://doi.org/10.1093/cdj/bsn028>
- Daston, L., & Vidal, F. (2004). *The Moral Authority of Nature*. University of Chicago Press.
- de Sousa, T., Andrichick, A., Prestera, E., Rush, K., Tano, C., & Wheeler, M. (2023). *The 2023 Annual Homelessness Assessment Report (AHAR to Congress) Part 1: Point-In-Time Estimates of Homelessness*. US Department of Housing and Urban Development. <https://www.huduser.gov/portal/sites/default/files/pdf/2023-AHAR-Part-1.pdf>.
- DeMyers, C., Warpinski, C., & Wutich, A. (2017). Urban water insecurity: A case study of homelessness in Phoenix Arizona. *Environmental Justice*, 10(3), 72–80. <https://doi.org/10.1089/env.2016.0043>
- Derrien, M. M., Cerveny, L. K., Bratman, G. N., Levy, C., Frank, P., Serio, N., & Blahna, D. J. (2023). Unsheltered homelessness in public natural areas across an urban-to-wildland system: Institutional perspectives. *Society & Natural Resources*, 36(8), 947–969. <https://doi.org/10.1080/08941920.2023.2199381>
- DeVerteul, G., May, J., & von Mahs, J. (2009). Complexity not collapse: Recasting the geographies of homelessness in a 'punitive' age. *Progress in Human Geography*, 33(5), 646–666. <https://doi.org/10.1177/0309132508104995>
- Devuono-Powell, S. (2013). *Homeless encampments in Contra Costa Waterways: Regulatory constraints, environmental imperatives and humane strategies [Master's thesis]*. Berkeley: University of California.
- Dickinson, W., Ferreyra, J., Imbesi, K. L., Joshi, S., Kingsolver, C., Klein, E., Lessios, N., Ng, A., Stamp, T., White, K., Xu, D., & Vidra, R. L. (2006). The ethical challenges faced by ecological restorationists. *Ecological Restoration*, 24(2), 102–104. <https://doi.org/10.3368/er.24.2.102>
- Doerschlag, I. (2021). *Water Pollution Resulting from Homeless Encampments in Creeks: Programs in Sacramento, Santa Cruz, and San Pablo* [University of California, Berkeley]. <https://escholarship.org/content/qt5fr6w243/qt5fr6w243.pdf>.
- Donley, A. M., & Wright, J. D. (2012). Safer outside: A qualitative exploration of homeless people's resistance to homeless shelters. *Journal of Forensic Psychology Practice*, 12(4), 288–306. <https://doi.org/10.1080/15228932.2012.695645>
- Dooling, S. (2009). Ecological gentrification: A research agenda exploring justice in the city. *International Journal of Urban and Regional Research*, 33(3), 621–639. <https://doi.org/10.1111/j.1468-2427.2009.00860.x>
- dos Santos, M. C. L. (2007). *Moving beyond homelessness. How design can be an instrument for change*. International Association of Societies of Design Research, The Hong Kong Polytechnic University. https://www.sd.polyu.edu.hk/iasdr/proceeding/html/sch_day4.htm.
- Eaton, W. M., Burnham, M., Robertson, T., Arbuckle, J. G., Brasier, K. J., Burbach, M. E., Church, S. P., Hart-Fredeluces, G., Jackson-Smith, D., Wildermuth, G., Canfield, K. N., Córdova, S. C., Chatelain, C. D., Fowler, L. B., Hendawy, M. M. Z., & elAbdeen, K. (2022). Advancing the scholarship and practice of stakeholder engagement in working landscapes: A co-produced research agenda. *Socio-Ecological Practice Research*, 4(4), 283–304. <https://doi.org/10.1007/s42532-022-00132-8>
- Enqvist, J. P., West, S., Masterson, V. A., Haider, L. J., & Tengo, M. (2018). Stewardship as a boundary object for sustainability research: Linking care, knowledge and agency. *Landscape and Urban Planning*, 179, 17–37. <https://doi.org/10.1016/j.landurbplan.2018.07.005>
- Enriquez-Loya, A., & Léon, K. (2020). Transdisciplinary rhetorical work in technical writing and composition: Environmental justice issues in California. *College English*, 82(5), 449–459. ProQuest Central; ProQuest One Literature; Sociological Abstracts. <http://web.lib.unt.edu:8080/login?url=https://www.proquest.com/scholarly-journals/transdisciplinary-rhetorical-work-technical/docview/2424657429/se-2?accountid=14593>.
- Fernandez-Gimenez, M., Huntsinger, L., Phillips, C., & Allen-Diaz, B. (1992). Conflicting values: Spirituality and wilderness at Mt. Shasta. *Proceedings of the Symposium on Social Aspects and Recreation Research*.
- Fischer, J., Gardner, T. A., Bennett, E. M., Balvanera, P., Biggs, R., Carpenter, S., Daw, T., Folke, C., Hill, R., & Hughes, T. P. (2015). Advancing sustainability through mainstreaming a social-ecological systems perspective. *Current Opinion in Environmental Sustainability*, 14, 144–149.
- Flanigan, S. T. (2024). Impacts of systems thinking on mission when environmental nonprofit organizations encounter the complex systems problem of homelessness. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 35, 172–188. <https://doi.org/10.1007/s11266-023-00577-9>
- Flanigan, S., & Welsh, M. (2020). Unmet needs of individuals experiencing homelessness near San Diego waterways. *Journal of Health and Human Services Administration*, 43(2), 105–130. JSTOR. <https://www.jstor.org/stable/27202903>.
- Folke, C., Colding, J., & Berkes, F. (2003). Synthesis: Building resilience and adaptive capacity in social-ecological systems. In C. Folke, J. Colding, & F. Berkes (Eds.), *Navigating social-ecological systems: Building resilience for complexity and change* (Vol. 9, pp. 352–387). Cambridge University Press.
- Foster, J. (2010). Off track, in nature: Constructing ecology on old rail lines in Paris and New York. *Nature and Culture*, 5(3), 316–337. <https://doi.org/10.3167/nc.2010.050306>
- Foster, J. (2014). Hiding in plain view: Vacancy and prospect in Paris' Petite Ceinture. *Vacant Land: The New Urban Green?*, 40, 124–132. <https://doi.org/10.1016/j.cities.2013.09.002>
- Fowler, P. J., Wright, K., Marcal, K. E., Ballard, E., & Hovmand, P. S. (2019). Capability traps impeding homeless services: A community-based system dynamics evaluation. *Journal of Social Service Research*, 45(3), 348–359. <https://doi.org/10.1080/01488376.2018.1480560>
- Frye, E. A., Capone, D., & Evans, D. P. (2019). Open defecation in the United States: Perspectives from the streets. *Environmental Justice*, 12(5), 226–230. <https://doi.org/10.1089/env.2018.0030>
- Gabriel, M. D., Mirza, S., & Stewart, S. L. (2022). Exploring mental health and holistic healing through the life stories of indigenous youth who have experienced homelessness. *International Journal of Environmental Research and Public Health*, 19(20), 13402. <https://doi.org/10.3390/ijerph192013402>
- Gabriel, N. (2016). "No place for wilderness": Urban parks and the assembling of neoliberal urban environmental governance. *Urban Forestry & Urban Greening*, 19, 278–284. <https://doi.org/10.1016/j.ufug.2016.02.006>
- Gallegos-Riofrio, C. A., Zent, E., & Gould, R. K. (2022). The importance of Latin American scholarship-and-practice for the relational turn in sustainability science: A reply to West et al. (2020). *Ecosystems and People*, 18(1), 478–483.
- Gamble, A. (2023). *Homelessness, water access, and environmental justice in an urban environment* [Master's thesis, Portland State University]. https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1082&context=mem_gradprojects.
- Gibson, A. (2019). Climate change for individuals experiencing homelessness: Recommendations for improving policy, research, and services. *Environmental Justice*, 12(4), 159–163. <https://doi.org/10.1089/env.2018.0032>
- Gibson, C. C., Ostrom, E., & Ahn, T.-K. (2000). The concept of scale and the human dimensions of global change: A survey. *Ecological Economics*, 32(2), 217–239.
- Goldfischer, E. (2020). *The difference that seeing makes: Homelessness and visibility in urban ecology* [University of Minnesota]. https://conservancy.umn.edu/bitstream/handle/11299/217136/Goldfischer_umn_0130E_21724.pdf?sequence=1.
- Goldsmith, L., & Bell, M. L. (2022). Queering environmental justice: Unequal environmental health burden on the LGBTQ+ community. *American Journal of Public Health*, 112(1), 79–87. <https://doi.org/10.2105/AJPH.2021.306406>
- Gomez, A. (2019). *An assessment of mitigation strategies to address environmental impacts of homeless encampments* [Master's thesis, California State University, Sacramento]. https://www.csus.edu/college/social-sciences-interdisciplinary-studies-public-policy-administration/_internal/_documents/thesis-bank/thesis-bank-2019-gomez.pdf.
- Goodling, E. (2020). Intersecting hazards, intersectional identities: A baseline Critical Environmental Justice analysis of US homelessness. *Environment and Planning E: Nature and Space*, 3(3), 833–856. <https://doi.org/10.1177/2514848619892433>
- Greif, G. (2021). Establishing a climate-conscious bill of rights for California's homeless. *UCLA Journal of Environmental Law & Policy*, 39(2), 251. <https://doi.org/10.5070/L539256964>
- Guerrero, A., Bodin, Ö., McAllister, R., & Wilson, K. (2015). Achieving social-ecological fit through bottom-up collaborative governance: An empirical investigation. *Ecology and Society*, 20(4). <https://doi.org/10.5751/ES-08035-200441>
- Hagerman, C. (2007). Shaping neighborhoods and nature: Urban political ecologies of urban waterfront transformations in Portland, Oregon. *Political Ecologies of Urban Waterfront Transformations*, 24(4), 285–297. <https://doi.org/10.1016/j.cities.2006.12.003>
- Hale, M. R. (2019). Fountains for environmental justice: Public water, homelessness, and migration in the face of global environmental change. *Environmental Justice*, 12(2), 33–40. <https://doi.org/10.1089/env.2018.0031>
- Hamilton, M. (2007). Approaching homelessness: An integral re-frame. *World Futures*, 63(2), 107–126. <https://doi.org/10.1080/02604020601123072>
- Haraway, D. (2008). Companion species, mis-recognition, and queer worlding. *Queering the Non/Human*, xxiii–xxvii.
- Hardenbrook, R., DeMarco, A., & Rose, J. (2022). A narrative political ecology approach to unsheltered homelessness and episodic poor air quality along an urban riparian corridor. *Society & Natural Resources*, 35(11), 1152–1169. <https://doi.org/10.1080/08941920.2022.2098437>
- He, C. (2018). *Integrating inclusive design concepts into landscape architecture: Empowering people experiencing homelessness through the design of inclusive public space* [Master's thesis, University of Georgia]. <https://esploro.lib.uga.edu/esploro/outputs/graduate/Integrating-inclusive-design-concepts-into-landscape-architecture-empowering-people-experiencing-homelessness-through-the-design-of-inclusive-public-space/9949334655402959>.
- Healy, J. (2017, December 21). As homeless find refuge in forests, 'anger is palpable' in nearby towns. *The New York Times*. <https://www.nytimes.com/2016/08/22/us/as-homeless-find-refuge-in-forests-anger-is-palpable-in-nearby-towns.html>.
- Heise, U. K., & Christensen, J. (2020). Multispecies justice in the wetlands. *Ecozon@*, 11(2), 169–177. <https://doi.org/10.37536/ECOZONA.2020.11.2.3566>
- Heller, N. E., Chauvin, M. C., Dylan, S., & Barnosky, A. D. (2023). Including stewardship in ecosystem health assessment. *Nature Sustainability*. <https://doi.org/10.1038/s41893-023-01096-7>
- Herring, C. (2014). The new logics of homeless seclusion: Homeless encampments in America's West Coast cities. *City & Community*, 13(4), 285–309. <https://doi.org/10.1111/cico.12086>
- Higgs, E. (2003). *Nature by design: People, natural process, and ecological restoration*. MIT Press.
- Higgs, E. S. (1997). What is good ecological restoration? *Conservation Biology*, 11(2), 338–348. <https://doi.org/10.1046/j.1523-1739.1997.95311.x>
- Hodgetts, D., & Stolte, O. (2016). Homeless people's leisure practices within and beyond urban socio-scapes. *Urban Studies*, 53(5), 899–914. <https://doi.org/10.1177/0042098015571236>
- Holland, B. (2012). Environment as meta-capability: Why a dignified human life requires a stable climate system. In A. Thompson, & J. Bendik-Keymer (Eds.), *Ethical Adaptation to Climate Change: Human Virtues of the Future* (p. 145). The MIT Press. <https://doi.org/10.7551/mitpress/9074.003.0011>.

- Holmes, C. A. (2006). Environmental health for the homeless?: Creating supportive environments for health and a better quality of life. *Environmental Health*, 6(2), 422–53. <https://doi.org/10.3316/informit.206694957380378>
- Howlett, K., & Turner, E. C. (2024). Research on the benefits of nature to people: How much overlap is there in citations and terms for 'nature' across disciplines? *People and Nature*, 6, 27–40. <https://doi.org/10.1002/pan3.10573>
- Ingold, T. (2018). From science to art and back again: The pendulum of an anthropologist. *Interdisciplinary Science Reviews*, 43(3–4), 213–227. <https://doi.org/10.1080/03080188.2018.1524234>
- Irvine, S., Johnson, L., & Peters, K. (1999). Community gardens and sustainable land use planning: A case-study of the Alex Wilson community garden. *Local Environment*, 4(1), 33–46. <https://doi.org/10.1080/13549839908725579>
- Jackson, P., & Neely, A. H. (2015). Triangulating health: Toward a practice of a political ecology of health. *Progress in Human Geography*, 39(1), 47–64.
- Jordan III, W. R. (1993). 'Sunflower Forest': Ecological restoration as the basis for a new environmental paradigm. In A. D. Baldwin, Jr., J. De Luce, & C. Pletsch (Eds.), *Beyond Preservation: Restoring and Inventing Landscapes* (pp. 17–34). University of Minnesota Press.
- Kaplan, S., Diver, K., Sandin, K., & Mill, S. K. (2019). Homeless interactions with the built environment: A spatial pattern language of abandoned housing. *Urban Science*, 3(2). <https://doi.org/10.3390/urbansci3020065>
- Kidd, S. A., Greco, S., & McKenzie, K. (2021). Global climate implications for homelessness: A scoping review. *Journal of Urban Health*, 98(3), 385–393. <https://doi.org/10.1007/s11524-020-00483-1>
- Kimmerer, R. (2011). Restoration and reciprocity: The contributions of traditional ecological knowledge. *Human Dimensions of Ecological Restoration: Integrating Science, Nature, and Culture*, 257–276.
- King, B. (2010). Political ecologies of health. *Progress in Human Geography*, 34(1), 38–55.
- Klein, K., & Riemer, M. (2011). Experiences of environmental justice and injustice in communities of people experiencing homelessness. *Ecopsychology*, 3(3), 195–204. <https://doi.org/10.1089/eco.2011.0039>
- Koontz, T. M., & Thomas, C. W. (2006). What do we know and need to know about the environmental outcomes of collaborative management? *Public Administration Review*, 66(s1), 111–121. <https://doi.org/10.1111/j.1540-6210.2006.00671.x>
- Koprowska, K., Kronenberg, J., Kuźma, I. B., & Łaskiewicz, E. (2020). Condemned to green? Accessibility and attractiveness of urban green spaces to people experiencing homelessness. *Geoforum*, 113, 1–13. <https://doi.org/10.1016/j.geoforum.2020.04.017>
- Krishnan, A. (2009). *What are academic disciplines? Some observations on the disciplinarity vs. Interdisciplinarity debate*. University of Southampton.
- Lake, R. W. (1996). Volunteers, NIMBYs, and environmental justice: Dilemmas of democratic practice. *Antipode*, 28(2), 160–174. <https://doi.org/10.1111/j.1467-8330.1996.tb00520.x>
- Latour, B. (2007). *Reassembling the social: An introduction to actor-network-theory*. Oup Oxford.
- Lave, R., Biermann, C., & Lane, S. N. (2018). *The Palgrave handbook of critical physical geography*. Taylor & Francis.
- Lave, R., Wilson, M. W., Barron, E. S., Biermann, C., Carey, M. A., Duvall, C. S., Johnson, L., Lane, K. M., McClintock, N., & Munroe, D. (2014). Intervention: Critical physical geography. *The Canadian Geographer/Le Géographe Canadien*, 58(1), 1–10.
- Leonetti, C. (2019). The wild, wild west: The right of the unhoused to privacy in their encampments. *American Criminal Law Review*, 56, 399.
- MacMurdo, M., Mulloy, K., Felix, C., Curtis, A., Ajayakumar, J., & Curtis, J. (2022). Ambient air pollution exposure among individuals experiencing unsheltered homelessness. *Environmental Health Perspectives*, 130(2), Article 027701. <https://doi.org/10.1289/EHP10414>
- Manyani, A., Biggs, R., Hill, L., & Preiser, R. (2024). The evolution of social-ecological systems (SES) research: A co-authorship and co-citation network analysis. *Ecology and Society*, 29(1). <https://doi.org/10.5751/ES-14694-290133>
- Margerum, R. D. (2008). A typology of collaboration efforts in environmental management. *Environmental Management*, 41(4), 487–500. <https://doi.org/10.1007/s00267-008-9067-9>
- Masuda, J. R., & Crabtree, A. (2010). Environmental justice in the therapeutic inner city. *Health & Place*, 16(4), 656–665. <https://doi.org/10.1016/j.healthplace.2010.02.003>
- McKendry, C., & Janos, N. (2015). Greening the industrial city: Equity, environment, and economic growth in Seattle and Chicago. *International Environmental Agreements: Politics, Law and Economics*, 15(1), 45–60. <https://doi.org/10.1007/s10784-014-9267-0>
- Mello, C. (2017). Aloha 'āina: Homelessness, learning communities, and social justice. *Practicing Anthropology*, 39(4), 31–34. <https://doi.org/10.17730/0888-4552.39.4.31>
- Merchant, C. (1990). *The death of nature: Women, ecology, and the scientific revolution*. Harper & Row.
- Mertens, D. M. (2021). Transformative research methods to increase social impact for vulnerable groups and cultural minorities. *International Journal of Qualitative Methods*, 20, Article 16094069211051564.
- Mitchell, D. (1995). The end of public space? People's Park, definitions of the public, and democracy. *Annals of the Association of American Geographers*, 85(1), 108–133. <https://doi.org/10.1111/j.1467-8306.1995.tb01797.x>
- Mokos, J. T. (2016). *Restoring the human in the search for nature: Homelessness, ecology, and the struggle for change* (2181687030) [Doctoral dissertation, Vanderbilt University]. ProQuest Central; ProQuest Dissertations & Theses Global. <http://web.lib.unt.edu:8080/login?url=https://www.proquest.com/dissertations-theses/restoring-human-search-nature-homelessness/docview/2181687030/se-2?accountid=14593>
- Mokos, J. T. (2020). Stigmatized places as therapeutic landscapes. *Medicine Anthropology Theory*, 4(1). <https://doi.org/10.17157/mat.4.1.362>
- Moore, J. W. (2015). *Capitalism in the web of life ecology and the accumulation of capital*. WorldCat: Verso.
- Mullenbach, L. E., & Baker, B. L. (2020). Environmental justice, gentrification, and leisure: A systematic review and opportunities for the future. *Leisure Sciences*, 42(5–6), 430–447. <https://doi.org/10.1080/01490400.2018.1458261>
- Narain, S., & Agarwal, A. (2007). Harvesting the rain: Fighting ecological poverty through participatory democracy. In J. Boyce, S. Narain, & E. Stanton (Eds.), *Reclaiming Nature: Environmental Justice and Ecological Restoration* (p. (p. 89)). Anthem Press. <https://doi.org/10.7135/UPO9781843313465.004>
- National Recreation and Park Association. (2017). *Homelessness in Parks* (p. 9). <https://www.nrp.org/contentassets/f768428a39aa4035ae55b2aaff372617/homelessness-in-parks-survey-report.pdf>
- Neild, M., & Rose, J. (2018). An exploration of unsheltered homelessness management on an urban riparian corridor. *People, Place & Policy Online*, 12(2), 84–98. <https://doi.org/10.3351/ppp.2018.6244452285>
- Nichols, C. E., & Del Casino Jr, V. J. (2021). Towards an integrated political ecology of health and bodies. *Progress in Human Geography*, 45(4), 776–795.
- Noe, E. E., & Stolte, O. (2023). Dwelling in the city: A qualitative exploration of the human-nature relationship in three types of urban greenspace. *Landscape and Urban Planning*, 230, Article 104633. <https://doi.org/10.1016/j.landurbplan.2022.104633>
- Nooe, R., & Patterson, D. (2010). The ecology of homelessness. *Journal of Human Behavior in The Social Environment*, 20, 105–152. <https://doi.org/10.1080/10911350903269757>
- Norton, C. L., Holguin, B., & Manos, J. (2013). Restoration not incarceration: An environmentally based pilot initiative for working with young offenders. In M. Gray, J. Coates, & T. Hetherington (Eds.), *Environmental Social Work* (pp. 192–212). Routledge. Doi: 10.4324/9780203095300-17.
- O'Neill, B. (2010). Down and then out in Bucharest: Urban poverty, governance, and the politics of place in the postsocialist city. *Environment and Planning D: Society & Space*, 28(2), 254–269. <https://doi.org/10.1068/d150408>
- Osborne, T., Brock, S., Chazdon, R., Chomba, S., Garen, E., Gutierrez, V., Lave, R., Lefevre, M., & Sundberg, J. (2021). The political ecology playbook for ecosystem restoration: Principles for effective, equitable, and transformative landscapes. *Global Environmental Change*, 70, Article 102320. <https://doi.org/10.1016/j.gloenvcha.2021.102320>
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(5939), 419–422. <https://doi.org/10.1126/science.1172133>
- Palomar, C. (2010). From the ground up: Why urban ecological restoration needs environmental justice. *Nature and Culture*, 5(3), 277–298. <https://doi.org/10.3167/nc.2010.050304>
- Palta, M., du Bray, M. V., Stotts, R., Wolf, A., & Wutich, A. (2016). Ecosystem services and disservices for a vulnerable population: Findings from urban waterways and wetlands in an American desert city. *Human Ecology*, 44(4), 463–478. <https://doi.org/10.1007/s10745-016-9843-8>
- Palta, M. M., Grimm, N. B., & Groffman, P. M. (2017). "Accidental" urban wetlands: Ecosystem functions in unexpected places. *Frontiers in Ecology and the Environment*, 15(5), 248–256. <https://doi.org/10.1002/fee.1494>
- Parker, C. (2021). Homelessness in the public landscape: A typology of informal infrastructure. *Landscape Journal*, 40(1), 49–66.
- Pautasso, M. (2019). The structure and conduct of a narrative literature review. In M. Shoja, A. Arynchyna, M. Loukas, A. D'Antoni, S. Buerger, M. Karl, & R. Tubbs (Eds.), *A Guide to the Scientific Career: Virtues, Communication, Research and Academic Writing* (pp. 299–310). John Wiley & Sons, Inc. Doi: 10.1002/9781118907283.ch31.
- Peters, E., Cherner, R., Christensen, J., Andrew, P., Aubry, T., Belanger, Y., Bird, C., Birdsall-Jones, C., Bonnycastle, M. M., & Brown, D. (2016). *Indigenous Homelessness: Perspectives from Canada, Australia, and New Zealand*. University of Manitoba Press.
- Phillips, F., Flynn, C., & Kloeppel, H. (2009). At the end of the line: restoring yuma east wetlands Arizona. *Ecological Restoration*, 27(4), 398–406. <https://doi.org/10.3368/er.27.4.398>
- Pricope, N. G., Cassidy, L., Gaughan, A. E., Salerno, J. D., Stevens, F. R., Hartter, J., Drake, M., & Mupeta-Muyamwa, P. (2020). Addressing integration challenges of interdisciplinary research in social-ecological systems. *Society & Natural Resources*, 33(3), 418–431. <https://doi.org/10.1080/08941920.2019.1680783>
- Raymond, C. M., Kaaronen, R., Giusti, M., Linder, N., & Barthel, S. (2021). Engaging with the pragmatics of relational thinking, leverage points and transformations—Reply to West et al. *Ecosystems and People*, 17(1), 1–5.
- Ricord, S. (2020). *Impact of homeless encampments on state department of transportation right of way* [Master's thesis, University of Washington]. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/45911/Ricord_washington.02500_21402.pdf?sequence=1&isAllowed=y
- Rigolon, A., Fernandez, M., Harris, B., & Stewart, W. (2022). An ecological model of environmental justice for recreation. *Leisure Sciences*, 44(6), 655–676. <https://doi.org/10.1080/01490400.2019.1655686>
- Riley, A. R., & Carpenter, K. A. (2021). Decolonizing Indigenous migration. *California Law Review*, 109, 63. <https://29qish1lqx5q2k5d7b491joo-wpengine.netdna-ssl.com/wp-content/uploads/2021/03/2-Riley-Carpenter-FINAL.pdf>
- Robinson, T. (2019). No right to rest: Police enforcement patterns and quality of life consequences of the criminalization of homelessness. *Urban Affairs Review*, 55(1), 41–73.
- Rose, J. (2017). Cleansing public nature: Landscapes of homelessness, health, and displacement. *Journal of Political Ecology*, 24(1), 11–23. <https://doi.org/10.2458/v24i1.20779>
- Rose, J. (2020). Unsheltered homelessness and the right to metabolism: An urban political ecology of health and sustainability. In A. Melis, J. Lara-Hernandez, & J. Thompson (Eds.), *Temporary appropriation in cities: Human spatialisation in public spaces and community resilience* (pp. 147–156). Springer.

- Rose, J., & Johnson, C. (2017). Homelessness, nature, and health: Toward a feminist political ecology of masculinities. *Gender, Place & Culture*, 24(7), 991–1010. <https://doi.org/10.1080/0966369X.2017.1347559>
- Rose, J., & Wilson, J. (2019). Assembling homelessness: A posthumanist political ecology approach to urban nature, wildlife, and actor-networks. *Leisure Sciences*, 41(5), 402–422. <https://doi.org/10.1080/01490400.2019.1627964>
- Salmon, E. (2000). Kincentric ecology: Indigenous perceptions of the humannature relationship. *Ecological Applications - Ecol Appl*, 10, 1327–1332. <https://doi.org/10.2307/2641288>
- Sandberg, L. A. (2014). Environmental gentrification in a post-industrial landscape: The case of the Limhamn quarry, Malmö Sweden. *Local Environment*, 19(10), 1068–1085. <https://doi.org/10.1080/13549839.2013.843510>
- Scarlett, L., & McKinney, M. (2016). Connecting people and places: The emerging role of network governance in large landscape conservation. *Frontiers in Ecology and the Environment*, 14(3), 116–125. <https://doi.org/10.1002/fee.1247>
- Scoccamaro, A. M. (2021). *Ameliorating homelessness through the built environment* [Master's thesis, University of Georgia]. <https://www.proquest.com/openview/9d82189b9a4616e1b6bf156fd3e8d86b/>.
- Shah, S. H., Rodina, L., Burt, J. M., Greg, E. J., Chapman, M., Williams, S., Wilson, N. J., & McDowell, G. (2018). Unpacking social-ecological transformations: Conceptual, ethical and methodological insights. *The Anthropocene Review*, 5(3), 250–265. <https://doi.org/10.1177/2053019618817928>
- Shannon, J., Hankins, K. B., Shelton, T., Bosse, A. J., Scott, D., Block, D., Fischer, H., Eaves, L. E., Jung, J.-K., Robinson, J., Solís, P., Pearsall, H., Rees, A., & Nicolas, A. (2021). Community geography: Toward a disciplinary framework. *Progress in Human Geography*, 45(5), 1147–1168.
- Snow, D. A., & Mulcahy, M. (2001). Space, politics, and the survival strategies of the homeless. *American Behavioral Scientist*, 45(1), 149–169. <https://doi.org/10.1177/00027640121956962>
- Southard, D. (1997). Uneasy sanctuary: Homeless campers living on rural public lands. *Visual Sociology*, 12(2), 47–64. <https://doi.org/10.1080/14725869708583780>
- Speer, J. (2017). "It's not like your home": Homeless encampments, housing projects, and the struggle over domestic space. *Antipode*, 49(2), 517–535. <https://doi.org/10.1111/anti.12275>
- Speer, J. (2019). Urban makeovers, homeless encampments, and the aesthetics of displacement. *Social & Cultural Geography*, 20(4), 575–595. <https://doi.org/10.1080/14649365.2018.1509115>
- Speer, J., & Goldfischer, E. (2020). The city is not innocent: Homelessness and the value of urban parks. *Capitalism Nature Socialism*, 31(3), 24–41. <https://doi.org/10.1080/10455752.2019.1640756>
- Springer, S. (2000). Homelessness: A proposal for a global definition and classification. *Habitat International*, 24(4), 475–484. [https://doi.org/10.1016/S0197-3975\(00\)00010-2](https://doi.org/10.1016/S0197-3975(00)00010-2)
- Stuart, F. (2014). From "rabble management" to "recovery management": Policing homelessness in marginal urban space. *Urban Studies*, 51(9), 1909–1925. <https://doi.org/10.1177/0042098013499798>
- Thistle, J. A. (2017). Indigenous definition of homelessness in Canada. *Canadian Observatory on Homelessness*. <https://yorkspace.library.yorku.ca/server/api/core/bitstreams/5ede993b-8605-43e5-becc-534f3972838b/content>.
- Thistle, J., & Smylie, J. (2020). Pekiwin (coming home): Advancing good relations with Indigenous people experiencing homelessness. *Canadian Medical Association Journal*, 192(10), E257–E259. <https://doi.org/10.1503/cmaj.200199>
- Tory, S. (2021). Where do public lands factor into the homelessness crisis? *High Country News*. <https://www.hcn.org/issues/53.10/south-public-lands-where-do-public-land-s-factor-into-the-homelessness-crisis>.
- Tsing, A., Mathews, A., & Bubandt, N. (2019). Patchy anthropocene: Landscape structure, multispecies history, and the retooling of anthropology: An introduction to supplement 20. *Current Anthropology*, 60, S000–S. <https://doi.org/10.1086/703391>
- Tucker, L. (2020). *Piloting leave no trace programming with people experiencing homelessness on public land in Austin Texas* [Master's thesis, Duke University]. <https://dukespace.lib.duke.edu/server/api/core/bitstreams/ec77fb34-83d1-46c7-be2d-ef798c217cc1/content>.
- Vasquez, I. A. (2019). Restoring reciprocal relationships for social and ecological health. *Ecology Law Quarterly*, 46(4), 1049–1068.
- Venturini, F., Degirmenci, E., & Morales, I. (2019). *Social ecology and the right to the city: Towards ecological and democratic cities*. Black Rose Books.
- Verbyla, M. E., Calderon, J. S., Flanigan, S., Garcia, M., Gersberg, R., Kinoshita, A. M., Mladenov, N., Pinongcos, F., & Welsh, M. (2021). An assessment of ambient water quality and challenges with access to water and sanitation services for individuals experiencing homelessness in riverine encampments. *Environmental Engineering Science*, 38(5), 389–401. <https://doi.org/10.1089/ees.2020.0319>
- Vickery, J. (2018). Using an intersectional approach to advance understanding of homeless persons' vulnerability to disaster. *Environmental Sociology*, 4(1), 136–147. <https://doi.org/10.1080/23251042.2017.1408549>
- Vogt, J. M., Epstein, G. B., Mincey, S. K., Fischer, B. C., & McCord, P. (2015). Putting the "E" in SES: Unpacking the ecology in the Ostrom social-ecological system framework. *Ecology and Society*, 20(1), 55. <https://doi.org/10.5751/ES-07239-200155>
- West, S., Haider, L. J., Stålhammar, S., & Woroniecki, S. (2020). A relational turn for sustainability science? Relational thinking, leverage points and transformations. *Ecosystems and People*, 16(1), 304–325.
- Westneat, D. (2021, August 21). A Seattle mecca for running goes dark as the city continues to fall short on homelessness. *The Seattle Times*. <https://www.seattletimes.com/seattle-news/a-seattle-mecca-for-running-goes-dark-as-the-city-continues-to-fall-short-on-homelessness/>.
- White, C. (2013). *Environmental impacts of homeless encampments in the Guadalupe River riparian zone* [Master's thesis, Royal Roads University]. https://sawpa.gov/wp-content/uploads/2018/05/SAWPAComm_Handouts.051518.pdf.
- Wilmer, H., Meadow, A. M., Brymer, A. B., Carroll, S. R., Ferguson, D. B., Garba, I., Greene, C., Owen, G., & Peck, D. E. (2021). Expanded ethical principles for research partnership and transdisciplinary natural resource management science. *Environmental Management*, 68(4), 453–467. <https://doi.org/10.1007/s00267-021-01508-4>
- Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and Urban Planning*, 125, 234–244. <https://doi.org/10.1016/j.landurbplan.2014.01.017>
- Young, P. S. (2021). *Camping grounds: Public nature in American life from the Civil War to the Occupy Movement*. Oxford University Press.
- Zeemering, E. S. (2014). *Collaborative strategies for sustainable cities: Economy, environment and community in Baltimore*. London.