



Unsheltered Homelessness in Public Natural Areas Across an Urban-to-Wildland System: Institutional Perspectives

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ABSTRACT

This article conceptualizes homelessness on public lands within a social-ecological systems framework, exploring dynamics in public natural areas in the Seattle metropolitan area (USA), a system with a compact urban-to-wildland gradient. While prior research has studied the dynamics of unsheltered homelessness within particular parks or cities—often in areas where camping is prohibited—our interview-based study makes integrated considerations of these dynamics across a range of jurisdictions. We present a thematic analysis that examines professionally diverse perspectives on the dynamics, stressors, and outcomes of public natural area usage by unsheltered individuals. We found a generally uncoordinated system in continual motion, in which considerable resources were expended for short-term, site-specific solutions that yielded system-wide detrimental outcomes perceived for unsheltered individuals, social service and environmental institutions, and ecosystem health. We discuss how improved institutional coordination and mutual understanding about intersecting governance systems could sustain better public land, public health, and social outcomes.

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Introduction

Homelessness is a long-entrenched and evolving phenomenon in many parts of the United States (Fowler et al. 2019; US HUD 2021). With roots in affordable housing shortages, unemployment, and inadequate systems for addressing substance abuse, mental illness, trauma, and many other intersecting challenges, homelessness often leads to devastating outcomes for individuals, families, and communities (Nooe and Patterson 2010; Flanigan and Welsh 2020). In the American West, increasing popular attention has emphasized the complex and sometimes intractable characteristics of homelessness in settings ranging from large cities to rural and wildland areas (Healy 2016; Westneat 2021; Tory 2021). While unsheltered homelessness occurs in a variety of public spaces, it creates distinct management challenges for parks and other public land management units (Cerveny and Baur 2020; Neild and Rose 2018). Public lands provide a critical

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ecosystem service in these settings—offering an affordable (though often unsanctioned) opportunity to meet needs (Asah, Blahna, and Ryan 2012; Palta et al. 2016)—but this usage creates economic and social challenges for land management agencies that are generally ill-equipped for addressing such complex social issues (Cervený and Baur 2020; NRPA 2017).

Public lands can be conceptualized as part of a social-ecological system (SES), characterized by a landscape-level patchwork governed by multiple agencies' rules and regulations concerning camping and other uses (McCool 2022; Morse 2020). Defined by complex and multi-scale feedback loops between human and ecological systems, SES frameworks stress the importance of governance in system-wide outcomes (Berkes and Ross 2013; Virapongse et al. 2016). In the American West, public lands (city, county, state, federal) often cumulatively comprise a majority of the land area (Vincent, Bermejo, and Hanson 2020). For many users of the public land patchwork, the agency managing each “patch” is not visible or noteworthy. For those who are navigating the system to secure temporary shelter, however, the differences between jurisdictions are highly relevant because they dictate regulations and enforcement for overnight and extended uses. Some public lands ban all overnight or nighttime use, such as many city parks. In jurisdictions where camping is allowed, sometimes it is only permitted in campgrounds or designated sites; in other areas, “dispersed” camping is allowed across large areas without any supporting recreational infrastructure. Many jurisdictions limit the consecutive or cumulative nights a person may occupy a site or area.

Even within jurisdictions with similar rules and regulations, the frequency and stringency of enforcement actions often varies. Actions include issuing citations for illegal camping, exceeding length-of-stay limits, residing on public lands, and infractions related to sanitation, litter, and vehicles (Baur and Cervený 2019). In some cases, authorities forcibly remove people and their belongings from sites, a practice known as “sweeping” that redistributes unsheltered individuals to other jurisdictions, resulting in health and safety challenges (Baur and Cervený 2019; Robinson 2019). Recent court rulings, however, have changed the policy landscape. A Ninth Circuit Court decision in 2018 ruled that people who were homeless could not be punished for sleeping outside on public property if no adequate alternative existed, thereby establishing homelessness as a condition, rather than a behavior (Martin v. City of Boise 2018). The policy context also changed during the COVID-19 pandemic, when some cities followed the Centers for Disease Control and Prevention's guidance to halt sweeping homeless encampments (US CDC 2022).

While research has conceptually explored homelessness through a complex systems perspective (Fowler et al. 2019), an SES perspective (Rose 2020), and ecological and social network perspectives (Nooe and Patterson 2010; Anderson et al. 2021), we are not aware of any studies that consider unsheltered homelessness as part of an SES whose subsystems include diverse public land ownerships. To fill this gap, we developed an exploratory, interview-based study to examine institutional perspectives on homelessness across two counties that span the urban-to-wildland gradient in Washington (USA). We use the term “public natural area” to refer to all publicly owned lands open to public use. Focused on the two counties as an interconnected SES, we ask, (a) how do professionals perceive the social-ecological dynamics of unsheltered homelessness

across public natural areas; (b) how do these dynamics affect governance systems; and (c) what are the system-wide outcomes of interactions between (a) and (b)? Answering these questions will help inform appropriately scaled and integrated solutions for unsheltered homelessness and understandings of societies embedded in SESs.

Definitions and National Trends

A homeless person has been defined as someone “who lacks a fixed, regular, and adequate nighttime residence” with distinctions between those who are sheltered (“staying in emergency shelters, transitional housing program, or safe havens”) and unsheltered (“whose primary nighttime location is a public or private place not designated for, or ordinarily used as, a regular sleeping accommodation”) (US HUD 2021, 2–3). Since homelessness is not a fixed or singular condition, some use terms such as “houseless” to emphasize structural dimensions. In public land contexts, terms such as “nonrecreational campers,” “homeless campers,” “long-term campers,” “residers,” “forest dwellers,” and “functional campers” are used to distinguish between people using similar spaces for recreational and utilitarian uses (Baur and Cerveny 2019; Cerveny and Baur 2020; Young 2021). For the purposes of our research, we use the terms “unsheltered” and “homeless,” while acknowledging the complexity of conditions, identities, and experiences.

Annual estimates of homelessness in the US come from a one-night, “point-in-time” count conducted by volunteers, widely considered an underestimate of actual populations (Roncarati, Byrne, and McInnes 2021). In January 2020, the count found 580,466 homeless individuals, 40% of whom were unsheltered (US HUD 2021). The unsheltered homeless population represents a larger proportion of the chronically homeless population (66%, compared to 25%) (US HUD 2021). The homeless population has a disproportionate representation of some racial and ethnic groups: in 2020, 39% was Black (compared to 12% of the US population), 23% was Hispanic or Latino (compared to 16%), and 5% was American Indian, Alaska Native, or Pacific Islander (compared to 1%) (US Census 2020a; US HUD 2021).

Homelessness in Parks, Nature, Recreation Management

Typically, studies of homelessness in public natural areas have been conducted within contained geographies—for example, a national forest in Oregon (Bottorff et al. 2012), a municipal park in Utah (Rose 2014; Neild and Rose 2018), and along waterways in California (Flanigan and Welsh 2020; Verbyla et al. 2021). Fewer studies have focused on broader scales to understand systemic, recurring dynamics.

Studies including social service perspectives have raised concerns about providers’ access to unsheltered individuals in public natural areas and ability to connect them with services (Flanigan and Welsh 2020; Anderson et al. 2021). In more rural settings, transportation-related challenges make traveling from encampment locations to employment and social services difficult, leading to more of a reliance on vehicles for sleeping and transportation (Pijl and Belanger 2021). In more urbanized settings, proximity to goods and services is more relevant on a pedestrian scale (Parker 2021; Wolch and

Rowe 1992). The avoidance of shelter services (sometimes in favor of public land options) has been related to safety and security concerns, poor conditions and mistreatment, behavioral issues, mental illnesses, substance use, reduced independence, and challenges for parents (Bottorff et al. 2012; Herring 2014; Neild and Rose 2018; Flanigan and Welsh 2020).

Studies including public land management perspectives have emphasized the negative effects of homeless inhabitation on natural environments, including the accumulation of trash, damage to vegetation, and concerns over fecal contamination in waterways (Bottorff et al. 2012; Cerveny and Baur 2020; Flanigan and Welsh 2020; Neild and Rose 2018; Verbyla et al. 2021). Researchers have proposed changes in urban park policy and design (Neild and Rose 2018; Koprowska et al. 2020), trainings for law enforcement officers (Baur and Cerveny 2019), and community-based approaches to designing public water and sanitation facilities (Verbyla et al. 2021).

There has been less focus in the literature on the day-to-day experiences of people living in public natural areas. Researchers have identified utilitarian aspects of natural environments, such as access to resources, space for sleeping and caring for pets, and the avoidance of police harassment and stigma (Asah, Blahna, and Ryan 2012; Dee Southard 1997; Flanigan and Welsh 2020; Parker 2021; Rose 2014; Verbyla et al. 2021). Immaterial benefits such as privacy, the calming effects of nature, and maintaining social networks and autonomy have also been found (Bottorff et al. 2012; Rose 2014; Harmon 2021; Koprowska et al. 2020). When forced to vacate a site, unsheltered individuals often move to another site, which may feel less familiar or safe, creating cyclic movement and stressful challenges (Robinson 2019).

Social-Ecological Systems

Understood through an SES framework, unsheltered homelessness is a phenomenon that crosses jurisdictional boundaries and is governed by multiple levels of institutional actors (Niva, Taka, and Varis 2019; Virapongse et al. 2016). SES frameworks can help navigate complex adaptive capacity and coordination challenges; they encourage description of social and ecological characteristics and interactions of subsystems that contribute to system-level outcomes, such as levels of community resilience (Berkes and Ross 2013; Koontz et al. 2015; Ostrom 2009). SES frameworks have been applied in a variety of decision-making contexts for extractive resource management (Ostrom 2009), as well as non-extractive contexts such as recreation management (Morse 2020; McCool 2022). Frameworks encourage tailoring management responses to subsystems, rather than attempting universal or linear solutions that can create a diffused, circulating set of unintended consequences (Ostrom 2009; McCool 2022).

Here, we adapt an SES framework to conceptualize unsheltered homelessness in public natural areas on a multi-county scale (Figure 1), considering the areas of homeless habitation (e.g., city parks, state campgrounds, national forests) as resource systems; the components of resource systems (e.g., vegetation, water, space) as resource units; social service, law enforcement, and other responses as the governance system; and unsheltered individuals, recreational visitors, and others interacting with the resource system as users.

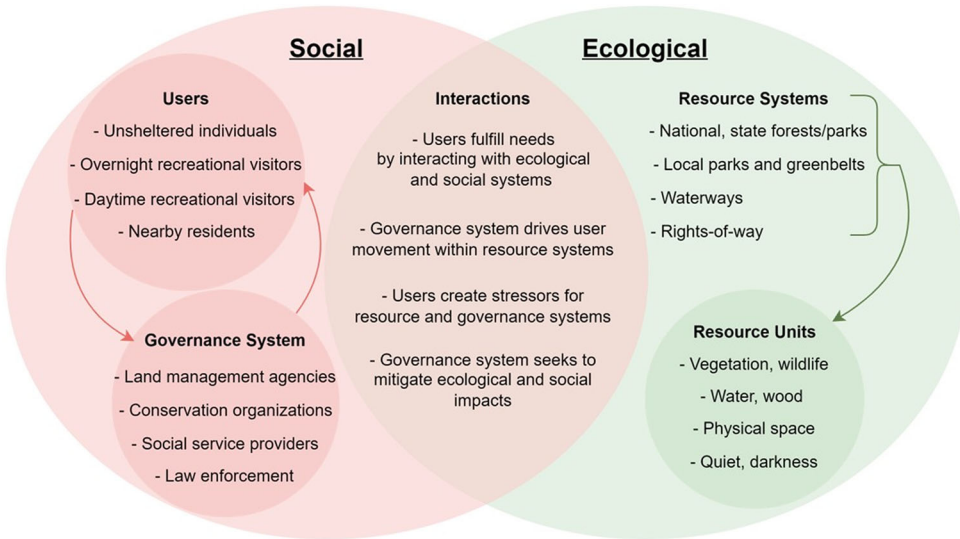


Figure 1. Conceptual relationships and interactions among social and ecological subsystems related to unsheltered homelessness in public natural areas.

Methods

Study Area

We focused on two counties in Washington: King County (population 2,269,675) and Snohomish County (population 827,957) (US Census 2020b), which have experienced rapid population and cost-of-living increases in the last decade, in part due to technology sector growth (PSRC 2022). The largest cities in our study area (Seattle, Bellevue, Kent, and Everett) are at low elevations and have year-round temperate climates. Diverse landscapes range from these urban population centers near Puget Sound, to wildlands reaching elevations of over 3,000 m in the Cascade Range. A patchwork of jurisdictions covers the counties, including private lands and city, county, state, and federal lands (including tribal lands) (Figure 2). As a result, the study area has dense interconnections of people, ecosystems, and institutions that span—over a relatively short distance—major urban areas, the wildland-urban interface, and wildland areas.

Based on point-in-time counts in 2020, Washington had the fifth highest rate of homelessness in the US (30.1 per 10,000 people), and more than half of Washington's homeless population (11,751 people) lived in King County (US HUD 2021). Using a more comprehensive method, King County estimated that 40,800 individuals had experienced homelessness the same year (KCDCHS 2021). In Snohomish County, the annual point-in-time count found 1,132 homeless individuals (SCHS 2020). The two counties have grappled with homeless populations and encampments for decades, with political polarization over responses, contention over widespread crackdowns and sweeps, and concerns over the displacement of recreational uses (Herring 2014; Westneat 2021).

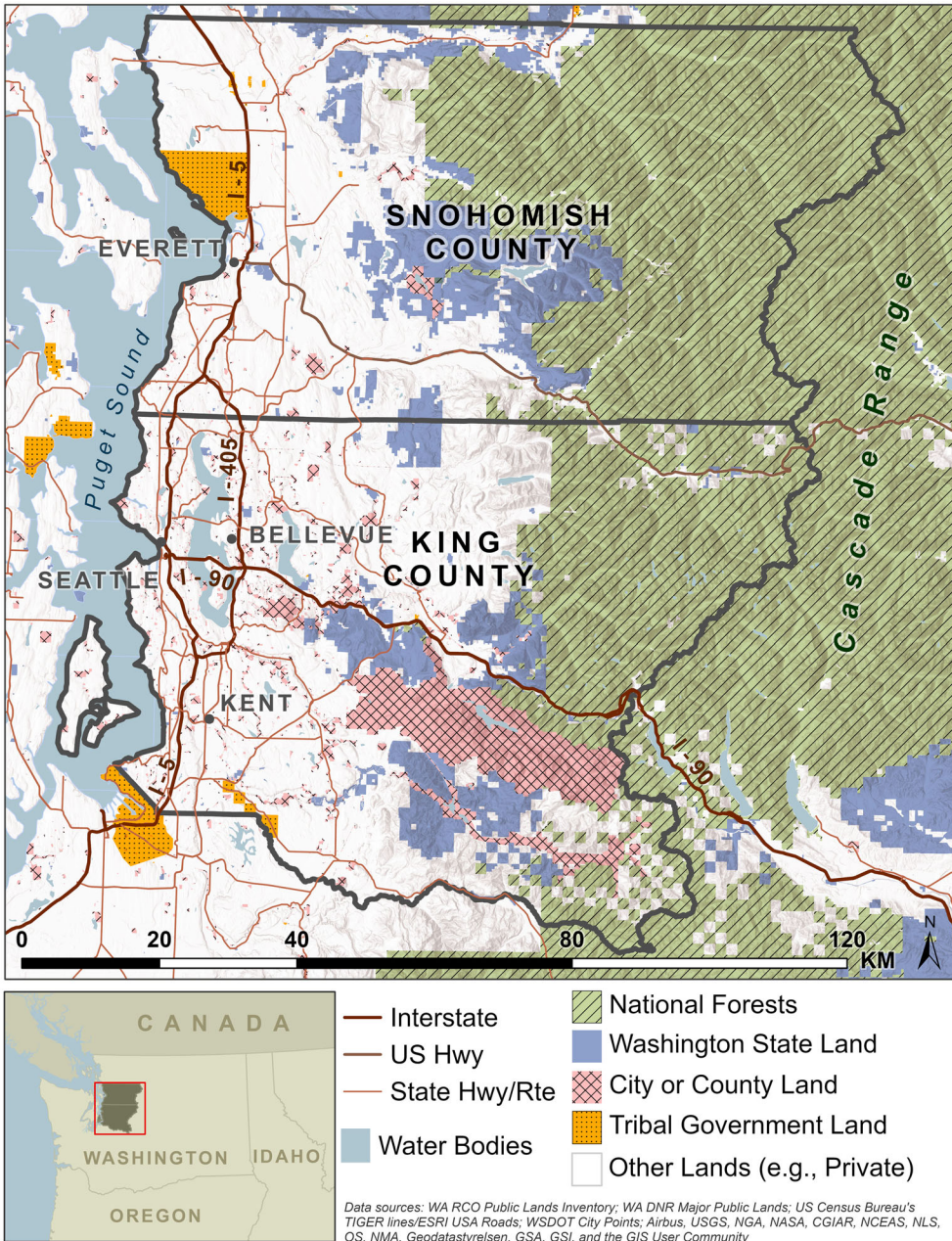


Figure 2. Map of King and Snohomish counties (WA), showing tribal, federal, state, county, and municipal lands.

Data Collection

Between September 2020 and March 2021, the research team conducted and audio-recorded interviews by phone or video. We used a chain referral approach to identify potential interviewees (Morgan 2008), seeking interviewees who worked across our

study area's urban-to-wildland system, and had experience working with unsheltered populations or managing public natural areas used by them. We purposively sought interviewees who fit within four categories: (a) "land managers" at government agencies; (b) "social service providers" at public health or social service organizations (nongovernmental or governmental); (c) "law enforcement officers" at all levels of government; and (d) "environmental stewards" at conservation organizations (nongovernmental or governmental).

We asked each interviewee about 20 questions, modified for each interviewee category to match areas of expertise (Supplemental File 1). These included questions about observed dynamics of unsheltered homelessness in public natural areas; perceived challenges for unsheltered homeless populations and factors that drove them into public natural areas; and how these dynamics affected them, their employer, and society more broadly. We asked scripted and unscripted follow-up questions to encourage elaboration.

Sample

We conducted 42 interviews with 46 interviewees,¹ whom we categorized according to their primary professional roles and the type of organization they represented (Table 1). About 60% of the people we contacted agreed to be interviewed; the remainder did not respond, referred us to colleagues, or declined the invitation. Interviews ranged from 21 to 87 minutes, averaging 55 minutes. The interviews were transcribed into 580 pages of single-spaced text and serve as our data set. In the results, interview excerpts are attributed with the abbreviation for the primary professional role and an interview number (e.g., "ES-1"), with an additional letter for interviews with multiple interviewees (e.g., "SS-6-A").¹

Table 1. Numbers of interviews by professional roles and organizational affiliations.

	Number of interviews (interviewees)	Examples
Total interviews	42 (46)	
Primary professional role		
Environmental steward (ES)	15	<ul style="list-style-type: none"> • Restoration ecologist • Conservation director
Land manager (LM)	14 (17) ^a	<ul style="list-style-type: none"> • Park planner • Ranger
Law enforcement officer (LE)	7	<ul style="list-style-type: none"> • Police sergeant • Law enforcement officer
Social service provider (SS)	6 (7) ^a	<ul style="list-style-type: none"> • Social worker • Director of housing services
Type of organization		
Federal government	8	<ul style="list-style-type: none"> • National forest unit • Tribal government
State government	8	<ul style="list-style-type: none"> • State park • Natural resources department
County government	6 (10) ^a	<ul style="list-style-type: none"> • County health services department • Sheriff's office
Municipal government	5	<ul style="list-style-type: none"> • City parks department • Police department
Nongovernmental organization	13	<ul style="list-style-type: none"> • Housing nonprofit • Environmental nonprofit
Private sector	2	<ul style="list-style-type: none"> • Urban planning organization

^aOne or more interview in this category included multiple interviewees

Data Analysis

We conducted a thematic analysis following standard practices (Braun and Clarke 2006). First, we developed a codebook defining 11 unique codes, topically related to our research questions. Using NVivo (release 1.5), two coders conducted three rounds of intercoder reliability testing to iteratively refine code definitions, ensure consistency in the application of codes, and add emergent codes. Then, the two coders coded the full set of interviews, applying codes at the sentence or multiple-sentence level. We used NVivo to create reports of coding prevalence, distribution, and the intersections of codes of interest. We then created summary documents that thematically summarized the information in the coded excerpts and compiled exemplary quotations.

As a research team, we worked to achieve high qualitative standards, ensuring consistency and trustworthiness throughout study design, data collection, analysis, and interpretation (Lincoln and Guba 1985; Rose and Johnson 2020). We engaged in ongoing conversations about our own subjectivities, encouraging critical reflexivity and questioning how our own experiences and assumptions influenced us as “research instruments” (Rose and Johnson 2020). We maintained detailed documentation to maintain an audit trail and ensure our approaches could be adapted to other contexts. We interrogated our data in multiple ways and shared preliminary interpretations with several groups as a member check. Our attention to these multiple dimensions of trustworthiness led to strong agreement and confidence in our findings and interpretations.

Results

Dynamics of Unsheltered Homelessness in Public Natural Areas

Interviewees perceived homelessness in public natural areas as a system in continual motion, with unsheltered individuals being driven between subsystems by multiple and variable drivers.

System drivers observed included those that pushed people away from their prior living situations, including housed, sheltered, and unsheltered situations. Interviewees perceived financial stressors as driving movement across the system including lost jobs and vehicles, medical debt, and increased costs of living. They identified untenable social situations as “push” factors, such as exhausting temporary options to stay with family or friends, the need to escape abusive domestic relationships, or undesirable conditions in congregant shelters. Shelters were described as having unsurmountable barriers to entry for some, such as not allowing pets, families, or couples, restricting the use of drugs, and hosting crowded environments that did not feel safe. Challenges with mental and physical illnesses, disabilities, trauma, and substance abuse—and managing these away from public scrutiny—were also described as driving people away from living situations in shelters and unsheltered urban settings. As one social service provider observed, “But why do they move out into the outer areas? To get away from the stress. [...] The ability to get away from society or escape without doing the drugs or doing the alcohol” [SS-2].

Interactions with multiple systems of governance were described as resulting in people being forcibly moved throughout the system, displaced from shelters and

Table 2. Main drivers interviewees identified as attracting unsheltered individuals to public natural areas.

Drivers toward public natural areas	SES elements	Examples
Permissive managerial setting	Governance system	<ul style="list-style-type: none"> • No/low cost. • Permissive, infrequent enforcement. • Projects that inadvertently enhance camping conditions.
Supportive infrastructure	Governance system, resource systems	<ul style="list-style-type: none"> • Proximity to work, services. • Accessible transportation networks. • Use of public infrastructure, recreational facilities. • Encampments constructed using tents, other materials.
Accommodating biophysical environment	Resource systems, resource units	<ul style="list-style-type: none"> • Vegetation, topography that allows cover, privacy, modification. • Access to natural resources. • Sufficient space for daily activities. • A calming, quiet environment.
Acceptable social setting	Users	<ul style="list-style-type: none"> • Small groups allowing self-regulation, safety, security. • Lacking in public use or visibility. • Recommended by peers. • Familiar camping location. • Allows freedom, self-determination.

encampments. In public natural areas, interviewees observed this occurring on an individual basis and through larger sweeps. In addition to routine patrols, forced movement away from public natural areas was sometimes in preparation for ecological restoration and trail construction projects. Often, though, enforcement actions were prompted by complaints from other users, including adjacent property owners, volunteers, and recreational visitors. Seasonal changes in precipitation, temperature, and water levels were also seen as driving people away from high-elevation and flood-prone areas.

Interviewees observed a wide range of factors that attracted people to public natural areas, many in direct response to undesirable circumstances elsewhere (Table 2). Sometimes the main driver was simply the provision of physical space for a tent in a time of urgent need. Generally, though, interviewees perceived a more complex set of considerations related to managerial, infrastructural, biophysical, and social environments, described below.

Permissive Managerial Setting

Fundamentally, camping as a free or inexpensive option was seen as a draw for unsheltered individuals, with encampment locations driven by variable managerial policies and practices. Patterns were observed as highly influenced by how much enforcement—and what kind—was conducted, often related to agency staffing levels and the acreage covered. As an environmental steward described, “People [are] kind of getting pushed from one landowner to another to another in the same general area, all in somewhat similar natural settings, but mostly just based on who paid enough attention to notice that someone was there” [ES-6].

Where camping was allowed, the enforcement of stay limits (often 7 or 14 days) influenced temporal patterns. Where camping was not allowed, interviewees perceived that people sought areas where detection by managers or law enforcement was less likely.

Jurisdictional boundary areas were described as desirable, where spaces were less defined and offered easy opportunities to shift to a different jurisdiction. Many mentioned that transportation corridors and rights-of-way created spaces that served this function.

Law enforcement officers, even from the same agencies/departments, were described as retaining discretion and varying in how strictly or pragmatically they implemented policies. In some areas, an integrated approach coupling a law enforcement officer with a social worker offered outreach and service connections before someone could be forced to move. Some observed a trend from more punitive to more compassionate approaches, as social consciousness rose about how institutions interact with marginalized people. Moratoriums on encampment removals during the COVID-19 pandemic were mentioned as leading to more and longer-term occupancies.

Supportive Infrastructure

Important infrastructural elements interviewees observed included proximity and access to social services, food and other supplies, healthcare, and jobs. Transportation networks were described as variably important, with sharp distinctions between the patterns and needs of people with and without vehicles. For unsheltered individuals without vehicles, interviewees observed that locations within walking or biking distances of urban centers were important. Those with vehicles were often seen camping in more remote locations, parking on national forest roads and near highway exits adjacent to public natural areas. Many interviewees described instances when vehicles used for transportation and shelter had broken down, and people had ended up stranded at a site. Interviewees also observed the use of recreational facilities, including campgrounds, restrooms, drinking water sources, and showers, that were sometimes traveled to daily when camping on site was not feasible.

The layers of tents and tarps used to construct encampments were described as freely available through local organizations, a relatively recent input into the system that had expanded camping options for unsheltered individuals. A social service provider described that:

A lot of it they get from social services [...] jackets, tents, sleeping bags, that sort of thing. I don't remember if they're still doing this, but I think at one point [...] Snohomish County had a bundle of things that people would need to have outside. And when there was funding for it, I'm not sure if that still exists, but that was really helpful for folks. [SS-4]

Interviewees observed that encampments sometimes were built around transportation infrastructure such as bridges and highway barriers, and supplemented with trees, pallets, lumber, scrap metal, furniture, rocks, and other materials. They noted that some sites clustered tents together with shared pathways, fences, dumpsters, handwash stations, and/or latrines, and used propane heaters, stoves, and barbecues for cooking and warmth.

Accommodating Biophysical Environment

Topography, vegetation, water, and weather were described as influencing the movements of unsheltered individuals. Interviewees observed that unsheltered people camped

in diverse settings including urban parks, forested greenbelts, wooded canyons, steep hillsides and gorges, beaches, riparian areas, and rural forests. These were generally at lower elevations, especially during the winter months. Encampment locations was described as ranging from “deep in the woods,” to natural areas at the fringe of suburban development, to heavily used parks and campgrounds. Many emphasized the perceived desire for privacy, to the extent it could be found. One social service interviewee described,

When you're that deep in active behavioral health issues, my understanding is that you want to disappear, literally and figuratively. And so, there are some pretty heavily forested areas even in the midst of an urban area where you can disappear, and that's what a lot of our folks are looking for, at least temporarily. [SS-6-A]

Rivers and other waterbodies centered in many interviewees' descriptions, which were seen as presenting seasonal challenges that drove movement, but which also were perceived as offering access for drinking water, bathing, and fishing. Interviewees generally focused on the most challenging season—cold, rainy, windy winters—but some also remarked on the challenges of heat, smoke, and fire hazards in the summer. Across settings, modifiable environments were frequently mentioned as attractive, where clearing or cutting vegetation to create privacy and shelter was possible. Trees and other vegetation were described as providing protection from the elements, limbs for attaching tarps, and firewood. Areas that had recently undergone ecological restoration were commonly mentioned as having attractive qualities for unsheltered individuals. Sites were often framed as places “anyone” would select for a recreational campsite (e.g., flat, dry, quiet, spacious), sometimes including higher order features of calming or aesthetically pleasing environments, such as water sounds or scenic views. Other sites—usually those closer to suburban or urban areas—were described as existing in less hospitable environments, in more marginal areas.

Acceptable Social Setting

The social conditions fostered in public natural areas were also described as driving use patterns, including the ability to self-regulate social interactions, avoid scrutiny from other users, and self-determine activities. A land manager described public natural areas as, “place[s] where you won't be bothered. I think it's the place that you can ... it's not claimed by other people, right? It's for everybody. [...] That's a big driver for why people find themselves camping in these places” [LM-9].

Word-of-mouth recommendations were seen as driving settlement patterns, with familiar recreational camping sites important for some. The type and degree of social interaction observed within encampments ranged considerably; a common configuration was a few tents composing a community unit of individuals and couples. While less prevalent, many interviewees reported encountering communities with dozens of occupants, including formally established “tent cities.”

Unsheltered individuals were described as incredibly resourceful and resilient in some ways, and extremely vulnerable in others. Physical and mental illnesses and disabilities, traumas, and a lack of medical care were seen as influencing movement patterns. Substance abuse was described as an omnipresent coping mechanism for—and contributor to—the challenges of homelessness in public natural areas. Internal, informal

Table 3. Main stressors to institutions governing public natural areas and unsheltered homelessness, by institution.

Main stressors	Type of institution			
	Land management	Environmental stewardship	Law enforcement	Social service
Lack of capacity or funding.	X	X	X	X
Lack of long-term solutions to implement.	X	X	X	X
Damage to environmental quality, natural resources, facilities.	X	X	X	
Lack of institutional guidance, policies.	X	X		
Safety concerns for staff, volunteers.	X	X		
Challenges for meeting restoration goals.	X	X		
Displacement, complaints, safety for people recreating.	X			
Complicated dynamics with funders, donors, boards.		X		
Nuisance complaints.	X		X	
Lack of compliance tools.			X	
Cycle of donations becoming trash.			X	
Lack of referral resources, services.			X	X
Emotional toll on staff.			X	X
Timing and alignment for availability/continuity of services.				X
Diverging perspectives on service provision.				X
Impacts on under-resourced communities.				X

support networks within encampment communities were described as offering mutual aid and protection, but becoming disconnected after sweeps, creating new perceived vulnerabilities for unsheltered individuals.

Stressors to System Governance

While the drivers of homelessness in public natural areas were seen as highly influenced by governance systems, these dynamics also created major stressors for governing institutions. Two stressors were notable for all types of institutions: the lack of capacity or funding, and the lack of long-term solutions to implement; other stressors varied by type of institution (Table 3).

Land Management Institutions

For land management institutions, a major stressor was the effects of an “unfunded mandate” to respond to homelessness. This resulted in insufficient staff time or resources available to address recurring issues, and/or reduced attention or funds for other (funded) tasks. For example, managers engaged in the recurring and expensive task of collecting and disposing of trash and human waste, and the removal of abandoned vehicles at encampments. Land managers described this stressor as an invisible externality created by social policies over which they had no influence.

Interactions between managers and unsheltered individuals in campgrounds and popular dispersed camping areas were described as especially challenging, as unsheltered individuals shuffled between sites, avoided paying fees, damaged recreational facilities, stored food improperly, left behind drug paraphernalia, and started illegal or improperly tended campfires. Managers described in many cases trying to enforce rules, minimize impacts, and offer information or resources, but at times lacked the needed personnel

capacity. These dynamics led to displaced recreational activities, deterred by safety and security concerns.

Interviewees from land management organizations described institutional pushback and clashes over values and practices. Some described a “crisis of mission” about whether their priorities should be ecological or social—and who should address homelessness-related issues. One land manager described,

It puts public land management agencies in sort of a catch-all of all of these responsibilities. You know, we’re supposed to steward the land we have in our trust. We’re supposed to provide recreation opportunities for folks and good experiences, memories, historical and cultural experiences. [...] When these sort of social service questions come up, it really puts a lot of agencies in a challenging spot. Historically that has not been our mission and it’s not been what we’ve been asked to do. And so if that’s what we’re asked to do now, then we probably need to have some agreement about what that means and how that’s funded. [LM-7]

At minimum, most described a lack of institutional guidance, policies, and expertise, and growing concern over the propriety of responses (or lack of responses) to public complaints. Occupational safety concerns arose for employees who lacked expertise for interacting with people with mental illnesses and substance abuse disorders, and supervisors described advising their employees to disengage if they felt uncomfortable. Yet, interviewees described a lack of interaction with organizations that could help them build these competencies.

Another major stressor was the conflict between ecological restoration and the use of crime prevention design principles. For example, trimming vegetation to decrease opportunities for privacy and reduce the desirability of an area for camping conflicted with desired riparian conditions for salmon. Interviewees also described concerns with working in areas that were currently inhabited, and avoided restoration activities that would not survive or would be made more expensive because of encampments impacts. They described their inability to meet restoration targets or requirements because they were forced to alter their practices, offering examples of projects that had been destroyed or waylaid. One land manager described, “We are avoiding restoring certain areas, either because it’s a wasted effort because of what happens to our plantings, or just because it’s not safe to have volunteers and restoration staff go into these areas” [LM-2-D].

Environmental Stewardship Institutions

Environmental stewardship organizations shared many of the same stressors as land management institutions, but often had an added institutional layer to navigate because their operational models involved contracted work on public lands. As a result, they had to navigate their project sponsor’s policies and guidelines related to homeless encampments, in addition to their own (if they existed). Generally, neither set of policies were seen as providing sufficient guidance, and interviewees described having to invent and implement ad-hoc approaches, which sometimes involved pausing work, and at other times involved changing project designs. One environmental steward described the need to “include people who know more about the homeless side of the issue.

The access side and the public use side we know a lot about. We just don't know a lot about the other side of this" [ES-11].

Project budgets and timelines rarely provided for the additional work that was needed when encampments were discovered in project areas. As an environmental steward described, "it gets categorized as something else. There's no line item for, you know, 'encampment impacts'" [ES-13]. For these and other reasons, nongovernmental organizations faced complicated dynamics with charitable foundations, donors, and board members, who had divergent opinions about sponsoring projects in areas where encampments were already present or might appear once work had been completed. Some also cited stressors with managing volunteers who were seen as overzealous in protecting areas from the impacts of encampments, as well as those who were discouraged from volunteering in areas where encampments were present.

Law Enforcement Institutions

Stressors to law enforcement institutions included a weariness in shuffling around unsheltered individuals, and not resolving underlying issues in a coordinated way. Officers described being on the defensive, addressing nuisance complaints from the public, and rarely being able to address situations proactively or with sufficient resources. They described offering resources and connections to services, communicating rules and timelines for vacating campsites, returning to sites to ensure compliance, and issuing citations. Some officers emphasized that they were not just challenged by overnight use, but also with this population's daytime activities and behaviors, such as public drug use and destructive use of recreational facilities.

Especially for officers with natural resource agencies, the extent of the resource damage to vegetation and waterways was a persistent stressor. One officer described the lack of capacity for enforcement across these agencies' larger jurisdictions as isolating:

We see the County and Everett and Seattle and a lot more of these bigger police departments, they have those resources where people like social workers and mental health professionals come out and try to help them out. But it's like I'm on an island out here and no one's ever even taken into consideration that these are things and problems that we see. [LE-5]

Law enforcement officers described challenges with breaking the word-of-mouth cycle of site recommendations and lacked adequate tools for interacting with people who repeatedly refused to vacate areas. For example, one officer described the distribution of recreational passes for state lands:

The churches and the resources places meant well [...] They would give some people the Discover Pass and they would tow the vehicle [...] up to our land and then say good luck. [...] Well, five or seven days comes along [...] And they're like, well, my car doesn't work and, and I can't leave. [LE-6]

Similarly, officers described frustrations with charitable organizations that distributed tents, sleeping bags, and other materials/equipment that were quickly abandoned, creating a self-perpetuating cycle of trash generation and clean-up. As another officer explained, "Some organizations just love to hand out tents, and food, and coats, and

mittens. And then we come through with our team and what do we find, it's the same stuff that was given away" [LE-1].

Social Service Institutions

Social service institutions shared some of the stressors already mentioned, in terms of capacity, underfunded programs, and the gap between resources and need. Because of variability in enforcement, some interviewees observed that homeless populations were pushed to public natural areas in neighborhoods already lacking resources. This led to disproportionate impacts on communities whose (housed) residents relied on many of the same overburdened social service institutions.

Interviewees noted the challenges of connecting people living in public natural areas with social services, especially in more remote areas. They described social service organizations that delivered food and resources to established encampments, but noted how few people they encountered were receptive to offers of off-site service connections. For those who were receptive, a lack of access to electricity for charging phones and challenges retaining identity documents made it near impossible to stay connected with providers at needed intervals. One social service provider explained,

When they do the sweeps, they are forced to leave things behind, and that further jeopardizes any potential for stabilization because they lose their ID, their Social Security, any kind of paperwork that they have. And then whatever outreach is being done to that area, now they've lost contact with people they've built relationships with that have been trying to help them. [SS-5]

Some interviewees noted barriers for homeless military veterans, related to a lack of knowledge about eligibility for veteran-specific services, as well as an aversion to seeking help. It took time to build enough rapport before many people became receptive to services, and interviewees perceived that some became adapted to living outside, making transitions difficult. Often, by the time a person was receptive, services were no longer available, or the person was not assessed as "vulnerable enough" to meet eligibility criteria. And then, as one social service provider described, "try going through those steps with PTSD [post-traumatic stress disorder] or TBI [traumatic brain injury]" [SS-1]. Among other challenges, this took a toll on staff, as one social service provider described repeatedly telling people: "I'm sorry, we don't have any resources available for you.' You know, that's really taxing on the mental health of our staff" [SS-6-A].

System Outcomes

Overall, interviewees presented the outcomes of public lands homelessness as detrimental for the functioning of SESs and subsystems (Figure 3). Interviewees observed that short-term solutions such as sweeps and encampment removals were not creating long-term or systemic solutions for social, ecological, or governance processes. The fundamental personal detriment of repeated displacement to unsheltered individuals was observed across interviewees. Ecologically, homelessness reduced the ability to complete restoration activities, created large quantities of trash left in vacated campsites, and created perceived risks related to water quality, landslides, and fire. Furthermore, homelessness was seen as diminishing the provision of public recreation opportunities.

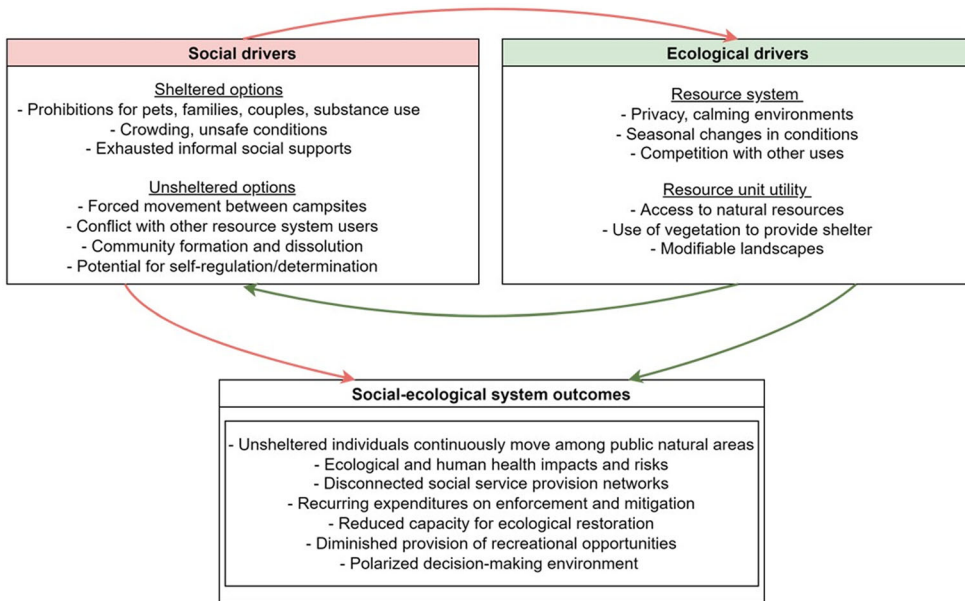


Figure 3. Social-ecological system outcomes of public lands homelessness, resulting from interactions between social and ecological drivers.

Persistent complaints from the public created polarization and backlash regarding the actions and inactions of public agencies. A lack of coordination among social service and environmental institutions meant that integrated solutions were rarely pursued, and the true costs of policies and practices were not visible. An environmental steward summarized this gap:

So, what the decision-makers are missing is the environmental portion of it. And there is an economic cost to this. There's an economic cost because one, you're having to put a lot of additional resources into managing encampments. And then you have to restore the land that they're on. [...] The environmental community needs to be at the table talking about the economic, societal, and environmental impacts of it. And that perspective is an important part of the dialogue that is missing and has been missing. [ES-13]

Perspectives on system outcomes were not uniform across interviewees working in different subsystems, with most focusing on the stressors closest to their own geographic area, jurisdictions, and area of expertise. Accordingly, interviewees identified different kinds of needed interventions and solutions. In urban areas, interviewees focused on the societal impacts of larger unsanctioned encampments, the conflicts this generated within institutions and the public, and how this affected management activities in particular "patches." In less dense, peri-urban areas, there was more of a focus on dynamics in established campgrounds, where short-term use was sanctioned and recreational infrastructure provided an unintended social resource. Here, opportunities for land acquisition for restoration and recreation purposes were described as preemptively deterred by considerations of homelessness. In rural and wildland areas, the focus was on dispersed camping, abandoned vehicles, and areas of seasonally concentrated use.

Interviewees offered some anecdotal insights of dynamics outside their professional realms, but most were forthright that their knowledge of system-wide dynamics

was incomplete. Those working for social service institutions were most focused on the social and health effects for this vulnerable population, and interviewees expressed less knowledge or concern over ecological or other land management issues. They defined the problem of homelessness in public natural areas as rooted in a lack of access and connectivity to people in need. To social service providers, the solution was related to better integrated systems of social service provision, detailing the challenges of “systems that work against each other” and “systemic blocks and barriers to seamless referrals” (SS-5). Dealing with an already complex system of social programs and issues, they generally did not mention broader systems or coordination with land managers or environmental stewards.

Those working for land management or environmental stewardship institutions detailed the challenges of managing landscapes with ongoing occupancy by unsheltered individuals, and mostly focused on mitigating ecological and infrastructural damages and negative effects for other users. They envisioned solutions that included more enforcement capacity and new partnerships with social service providers, but few had started implementing those solutions. Law enforcement officers straddled social service and natural resource realms, focusing on their roles for protecting public natural resources and public safety. The problem they saw was having an inadequate set of tools and capacity to enforce rules. Like land managers and environmental stewards, officers suggested solutions that included strengthening enforcement and coordination, rather than “just putting a Band-Aid on the problem” [LE-5].

Discussion

Similar to other studies, we found that natural areas were perceived as providing important settings and ecosystem services to unsheltered individuals, including provisioning services such as access to natural resources that provide water, firewood, and shelter, and psychological services provided by calming, private, and quiet environments (Rose 2014; Palta et al. 2016; Harmon 2021; Koprowska et al. 2020). The relative desirability of these factors was also seen as driving movement throughout the system, with unsheltered individuals seeking public natural areas that had permissive managerial environments, infrastructural supports, biophysical conditions conducive to camping, and supportive community settings. Some of these factors mirror the push and pull factors observed in driving rural-to-urban migration to “slums” (Niva, Taka, and Varis 2019), a different context also driven by a lack of adaptive capacity among institutions.

Our use of an SES framework helped us systemically examine multiple levels and aspects of unsheltered homelessness across public lands, structuring our considerations around the interactions of users, governance systems, resource systems, and resource units. We observed a range of perspectives about interactions, likely because of the specificity of roles, number of resource systems and units, multiple governance systems, and complexity of relationships within the system. Our findings demonstrate how dynamics of unsheltered homeless within our study area were more visible to those working in specific subsystems or with specific populations. For example, few land managers or environmental stewards had direct interactions with social service providers, or specific knowledge about how to coordinate with them; social service providers rarely

observed the ecological and managerial stressors created by encampments, nor did they suggest land managers or environmental stewards as potential partners in developing solutions.

We suspect the individual perspectives offered in our interviews affected how institutions defined problems and their potential solutions. For example, social service providers described the positive aspects of free distributions of camping gear, since this filled an immediate need for vulnerable people, even though most had no access to a sanctioned place to camp (at least for long). Land managers and law enforcement saw the end of the cycle, when gear was routinely discarded after little use. No interviewees described seeing the full cycle, from distribution to disposal. This specificity and positionality of institutional actors affects with whom institutions partner (if anyone), and what sorts of solutions they seek. In other words, these subsystem perspectives seemed to define the range of possibilities imagined for addressing homelessness in public natural areas. Siloed action that overlooked these subsystem interactions meant that many dynamics were ones over which land managers had little influence and for which they had few resources to inform their responses. These conditions lead to reduced adaptive capacity (Koontz et al. 2015). Better appreciation of the full system and the cyclic patterns within it could help identify strategic coordination opportunities among these disconnected institutional actors (e.g., between social service providers and land managers).

At a systems level, we observed a large potential benefit to be gained from internal institutional guidance and external partnership development among the diverse institutions that interact with public lands homelessness. Multilevel coordination and policy-making are important actions that our findings suggest could reduce the extent to which people are forcibly moved throughout the system, with little benefit and considerable detriment for vulnerable people who are unsheltered, social service and environmental professionals, and ecosystems. These actions could also be used to foster dialogue around the mission conflicts that arise for public land management agencies, and the contemporary effects of historical actions to promote recreational camping opportunities while restricting “functional” camping (Young 2021).

Many stressors transcended institutions, especially related to human and financial resources and capacity. Given system-wide social-ecological interactions, we suggest Nooe and Patterson’s (2010) ecological model of homelessness—which includes individual and social outcomes—would benefit from expansion to include biophysical and ecological variables, especially for describing unsheltered homelessness. Our findings demonstrate the utility of system perspectives for not just understanding the human dimensions of social service management systems (Fowler et al. 2019; Flanigan and Welsh 2020) and the ecological dimensions of environmental management (Virapongse et al. 2016)—but for truly integrated understandings of SESs that can help build resilience (Berkes and Ross 2013).

We encourage our insights be used to guide methodological development of studies that use SES frameworks to examine the dynamics of public lands homelessness in greater scope and detail, including interactions with sheltered homelessness in and beyond our subregional context. Studies designed to make categorical comparisons in the dynamics of urban, peri-urban, wildland, and rural public natural areas would also

help characterize subsystem differences and examine interacting and compounding stressors.

Our findings for the Seattle metropolitan area are contingent on our study area's topographical, climactic, political, and social contexts. For example, the area is distinctive for its compact urban-to-wildland gradient, across which many public agencies, at all levels of government, govern the diverse patchwork of land ownerships. We caution against generalizing our findings to other areas, especially where there is greater distance between urban and wildland areas, or less diversity in land ownership.

Practically, though, our findings offer insights for professionals in our study area, as they manage the human and material dimensions of homelessness, and other aspects of SESs more broadly. More forums for promoting awareness and "engaged governance" (Berkes and Ross 2013) in multiple aspects and levels of the system would likely produce wide-reaching benefits. Some small-scale examples were offered within our study area, either physically in the form of officially sanctioned tent cities or tiny house villages, or institutionally in the form of integrated response systems. But these were described as lacking beyond the small local scale of their purview. Successful models, and their ability to scale to system-level partnerships, warrant future study and application. These models likely require national- or state-level policies and investments for effective implementation.

As exploratory research, our study was designed to answer governance-related research questions from professionally diverse interviewees. We had the least success with our outreach to social service organizations, likely because of our environmental affiliations as researchers and overburdened social service staff without discretionary time to offer. For future research, we recommend research partnerships among environmental, social service, and public health entities to improve outreach success and increase the richness of understanding of subsystem dynamics. In addition, research that builds on the institutional perspectives presented here will need to include the perspectives of unsheltered individuals to understand their lived experiences of the observed dynamics. Those findings will likely challenge, complicate, or supplement the findings we have presented here.

Conclusions

This article characterized multiple dimensions of public lands homelessness in two counties in an urban-to-wildland system, using an SES framework to understand the dynamics and stressors in public natural areas, as observed by professionals. Our study focused on how multiple subsystems interact to influence system-level outcomes for individuals, institutions, and ecosystems. We found a generally uncoordinated system in continual motion, in which institutions expended considerable resources for short-term, site-specific solutions that yielded detrimental system-wide outcomes for social service, law enforcement, and environmental organizations. At the same time, we observed how ecosystem services support the lives of unsheltered individuals residing in public natural areas, and how this population is affected by intersecting governance systems. This highlights the complexity and utility of SES frameworks for considering how subsystems can be coordinated to drive system-appropriate solutions. We demonstrate how

intersecting governance systems affect one of society's most vulnerable populations, and suggest that mutual exchange and coordination of institutional practices within and across subsystems would likely yield more desirable public land, public health, and social outcomes. Our findings suggest that coordination has not occurred organically or at large enough scales to be effective, and that policy interventions are needed to support responses to public lands homelessness.

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CRedit Authorship Statement

Conceptualization: DJB, MMD, LKC, GNB; Methodology: DJB, MMD, LKC, GNB; data collection: MMD, CL, LKC, NS; Formal analysis and investigation: MMD, CL; writing – original draft preparation: MMD, PF, LKC, GNB; writing – review and editing: DJB, NS, CL; funding acquisition: DJB, MMD, GNB; supervision: GNB, MMD.

Ethical Approval

The University of Washington Human Subjects Division reviewed this project and determined that the activity qualified for exempt status. All participants signed an electronic consent form prior to participation.

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No potential conflict of interest was reported by the author(s).

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Data Availability Statement

Study participants did not agree for their full interview transcripts to be shared publicly, so supporting data is not available.

Note

1. Two interviews were conducted with more than one person: for these, our initial contact requested that one or more of their colleagues be interviewed concurrently.

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