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Research Article - social sciences

Homelessness and Nonrecreational Camping on National Forests and Grasslands in the United States: Law Enforcement Perspectives and Regional Trends

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Abstract

National forest law enforcement officers regularly encounter “nonrecreational” campers whose tenure exceeds established stay limits (generally 2 weeks). Some long-term occupants are homeless and seek use of the forest as a temporary or long-term residence. Long-term nonrecreational campers present myriad concerns for forest officials, who seek to balance public access and resource conservation. In addition to biophysical impacts because of waste, disposal of chemicals, soil compaction, and damage to vegetation, nonrecreational campers can alter the social environment being shared with other forest visitors. For this exploratory study, US Forest Service law enforcement officers ($n = 290$) were surveyed to assess officer perceptions of the frequency of encounters, trends, and types of nonrecreational campers. We provide a descriptive summary of major findings and point out regional variations and trends. Officers perceive regional variations in the frequency of encounters with nonrecreational or homeless campers as well as types of campers encountered.

Homelessness remains a persistent challenge throughout the United States and is a growing concern in rural communities, where a lack of shelters and services often cause homeless individuals and families to live in tents or vehicles in remote locations ([White 2015](#), [National Alliance to End Homelessness 2016](#)). Nonrecreational long-term camping, which often involves homeless individuals, is a growing phenomenon on national forests and other public lands in the US, creating challenges for front-line personnel. Taking up temporary residence on national forests can be a low-overhead option for those experiencing poverty, job loss, or housing displacement ([Asah et al. 2012](#)). Some forest dwellers participate in intentional communities or unstructured groups that live on public lands

by choice ([Southard 1997](#), [Woodall 2007](#)). Others, including many retirees, reside in vans, campers, or recreational vehicles (RVs) parked in dispersed forest settings ([Wakin 2005](#)). In the national forest system, most forests are governed by an executive order that limits stays. Individuals camping beyond this limit are susceptible to a citation for a “stay violation” (CFR Title 36, Chapter II, Part 26. §261.58). Homeless encampments may be subject to other regulations prohibiting construction of buildings or fencing, abandoning personal property, or leaving trash, waste, or unattended personal items (CFR, Title 36, Chapter II, Part 26. §261.10; 261.11). Despite regulations making long-term habitation of national forests illegal, the practice continues, presenting a unique set

Management and Policy Implications

Long-term nonrecreational camping presents a growing concern for public land managers in the United States. National forests and grasslands are increasingly being used for residential purposes by people who are homeless or those voluntarily living “off the grid.” Public lands can serve as a temporary residence for families, unemployed workers, or those lacking affordable housing. Most national forests are governed by “stay limitations” that require campers to relocate after a set period—typically 14 days. Moreover, unpermitted residential use is illegal on national forests. Long-term camping is associated with multiple adverse effects on the biophysical environment and can present safety concerns for recreational visitors, agency staff, and vendors. Cleanup and mitigation of long-term encampments use resources that could be invested into other conservation measures. More importantly, homeless campers are particularly vulnerable to violence, domestic abuse, drug use, and health issues. Agency law enforcement officers play a critical role in this system. Our survey of law enforcement officers revealed that nonrecreational camping occurs on national forests throughout the United States. Although encounter rates vary, officers in western forests report more frequent encounters with nonrecreational campers and also observe a greater diversity of camper types. Study results could inform the future development of officer training materials that provide tools and strategies to address vulnerable groups living outdoors.

of challenges for agency officials, who must manage and mitigate the effects of nonrecreational camps on the natural and social environment (Baur et al. 2015). Nonrecreational campers living on public lands represent a population that is particularly vulnerable, and more attention to the needs of this group is warranted.

Since the late 1990s, homelessness has been identified as a priority concern for law enforcement (Chavez and Tynon 2000). US Forest Service law enforcement officers (LEOs) cover vast territories and address a full range of criminal activities on national forests (Tynon et al. 2001). Their primary role is to provide human safety and to protect resources from theft, vandalism, or destruction. Recent media accounts have drawn public attention to nonrecreational camping and identified a growing array of concerns including fire, conflicts with recreation visitors, and sanitation violations (Wyler 2014, Cowan 2016, Healy 2016, Henderson 2016a, Henderson 2016b, Peterson 2016, Romeo 2016). The Ocala National Forest (Florida) made headlines in 2005 when a series of crimes were linked to squatter gangs living in the forest. A sweep of dispersed campsites revealed methamphetamine labs (Tseng 2005, Hudak 2007). In 2007, a homeless man was jailed for starting two wildfires that burned California’s Los Padres National Forest (Santa Barbara Independent 2007). In 2015, a man was found living in the Uncompaghere National Forest (Colorado), where he generated 8,500 pounds of garbage, requiring 48 volunteers and a helicopter to remediate (Hinckley 2015). These stories suggest public interest in challenges of homelessness and point to the potential impacts on natural resource agencies.

This study was conceived to better understand trends, factors, and implications of long-term nonrecreational camping and homelessness in national forests and grasslands from the perspective of agency officers. We used the more encompassing terms: “nonrecreational camper” (NRC) and “long-term occupant,” rather than “homeless camper,” to understand long-term camping more broadly and to avoid the potential for negative stereotypes. Our conceptualization built upon Southard’s (1997) typology of forest homeless (economic refugees, voluntary nomads, and separatists) and was expanded to include all others who are living seasonally, temporarily, or intentionally on public lands in violation of stay limits. Specifically, we defined “nonrecreational campers” as those

... occupying a site for longer than two weeks for purposes other than traditional recreation. This includes individuals, families, or larger groups who are unemployed, seasonally employed, chronically homeless, temporarily displaced, transient retirees, students, or other travelers passing through the area. It also may include those living in the forest as a life-choice.

We surveyed US Forest Service LEOs to assess the frequency of encounters, overall trends, and effects of nonrecreational camping on other resource users and the physical environment. This paper summarizes general trends and subregional variations, and provides elements of a nonrecreational camper (NRC) typology. Our goal is to better understand the problem’s magnitude from the perspective of front line officials,

and to learn more about the types of NRCs residing on national forests and grasslands.

Homelessness as a Social Phenomenon

More than 550,000 homeless individuals were documented in the US in 2016 including 35 percent who were part of homeless families, 22 percent who were chronically homeless, 9 percent who were veterans, and 7 percent unaccompanied youths (under age 25) (US Department of Housing and Urban Development 2016). Because of difficulties in counting, other reports estimate that the number of homeless persons is between 2.5 and 3.5 million (National Law Center on Homelessness and Poverty 2018). The US Department of Housing and Urban Development (HUD) defines the “homeless” as, people living in a place not intended for human habitation, in a shelter, in transitional housing, or leaving an institution where they temporarily resided; people who are losing a primary night-time residence within 14 days; families and unaccompanied youth who are unstably housed; and people fleeing domestic violence with no other place to seek support (US HUD 2018b). Some scholars distinguish between “homeless” and “houseless,” where the latter term emphasizes that one may lack a house, but still feel the social or emotional ties associated with home (Kidd and Evans 2011). Causes of homelessness can be both systemic (e.g., economic recession, natural disaster, or housing collapse) and personal (e.g., financial setback, unpaid medical bills, disability, illness, or divorce) (Shinn and Weitzman 1990, Timmer 1994, Main 1998, Mitchell 2011). Mental health issues and substance abuse are frequently significant contributing factors, particularly in cases of chronic homelessness (Meanwell 2012).

Single elderly or aging adults may be at greater risk for becoming homeless because of greater need for health care, rising health care and home care costs, or lower incomes. Seniors are an increasing proportion of homeless or home-unstable individuals in the US (Culhane et al. 2013, US HUD 2018a). Recent accounts have documented low-income adults, including seniors living in RVs for long stretches—moving from place to place and forming informal nomadic communities (Hartwigsen and Null 1991, Counts and Counts 2001). Terms used to describe this practice include boon-docking, van-dwelling, and freedom camping (Counts and Counts 2001, Harris 2016). Veterans constitute another group whose numbers among the homeless appear to be growing as well (Fargo et al. 2012). Many veterans face post-traumatic stress, other

disabilities, or substance abuse difficulties, which preclude them from full-time employment or stable housing (Metraux et al. 2013). Although we often envision “homeless” individuals as a monolithic group, this community is quite diverse (National Alliance to End Homelessness 2019).

According to HUD, an *unsheltered* homeless person lives in places not intended for extended or permanent habitation (e.g., vehicles, abandoned buildings, or tents). Nearly one-third of documented homeless individuals in the US were unsheltered in 2016; however in several states (e.g., California, Oregon, Hawaii, and Nevada) the ratio exceeded 50 percent. Two-thirds of those considered *chronically homeless* were unsheltered (US HUD 2016). Studies exploring factors contributing to unsheltered habitation have commonly focused on urban settings (Lawrence 1995, Snow and Mulcahy 2001, Borchard 2005, Chamard 2010, Gowan 2010, Wasserman and Clair 2011, Herring 2014), although rural homelessness has received increasing attention (Nord and Luloff 1995, Hilton and DeJong 2010, Whitley 2013, Carpenter-Song et al. 2016, Schiff et al. 2016). Rural areas often lack shelters and services for homeless individuals. Rural homeless persons may set up camps in parks or undeveloped spaces, or live in vehicles parked in remote sites on public or private lands (Loftus-Farren 2011.) Unsheltered homeless individuals are more likely to have been treated for psychiatric conditions or to consume alcohol than those who opt for sheltered housing (Larsen et al. 2004).

Homeless Campers on Public Lands

Tynon and Chavez (2006) indicate the need for quantifying criminal activity on national forests and grasslands and for evaluating the effects of illegal activity on resource health and visitor behavior. Few studies have investigated unauthorized long-term camping or the conditions of homeless encampments on federally managed public lands. Blumner and Daugherty (1995) surveyed homeless residents living adjacent to national forests near Los Angeles. Their study speculated about the potential impacts of homelessness on public lands, drawing attention to sanitation, vandalism, fire, crime, and displacement of recreational visitors (Blumner and Daugherty 1995). Published accounts describe low-income retirees living in RVs on public lands, but this has not been systematically investigated (Harris 2016). Although technically not homeless, since their campers provide habitable conditions, many remain parked beyond stay limits, with impacts on the surrounding area. Stein et al. (2010) explored crime and

recreation pressures on an urban-proximate national forest in Florida and identified squatters as a significant challenge for land managers.

Baur et al. (2015) used a rapid appraisal approach to assess homelessness and nonrecreational camping in national forests and grasslands. Forest officials identified challenges associated with impacts on biophysical resources, displacement of recreational users, and negative social interactions, as well as management challenges associated with relocating unauthorized campers and mitigating abandoned encampments (Baur et al. 2015). Another study identified illegal activities associated with nonrecreational camping on national forests based on LEO perceptions (Baur and Cerveny 2019). Common violations included possession, production, or distribution of narcotics; public intoxication; and illegal possession of firearms, among others (Baur and Cerveny 2019). These findings suggest that the presence of nonrecreational campers potentially impacts public safety. A study of park manager perceptions of homeless campers in an urban river parkway identified several environmental impacts (soil compaction, vegetation removal, and human waste), as well as social impacts (safety concerns, displacement of users, and visual effects from encampments) (Neild and Rose 2018). The study also discussed the outcomes of various mitigation strategies (site cleanup, police enforcement, and landscape modification) and found that these strategies addressed site concerns situationally; but a collaborative approach with community partners would raise public awareness and allow lasting change (Neild and Rose 2018).

A few studies have sought to develop typologies of homeless campers on public lands. Southard (1997) conducted an ethnographic study of more than 300 homeless campers in an Oregon national forest over several seasons. Southard's typology of forest dwellers captured similarities in circumstances and variations in intentionality. "Economic refugees" included individuals and families who were temporarily or permanently unemployed or unable to obtain affordable housing; "voluntary nomads" were considered those living in the forest by choice, often moving from site to site; and "separatists" (also called "antisocial individuals") were those who generally traveled alone seeking seclusion. Southard's typology was adopted by Borttorff et al. (2012) in an ethnographic study of homeless campers on the Willamette National Forest. Meanwhile, Devuono-Powell (2013) identified three types of homeless campers using public lands along California waterways: old-timers (smaller camps often

near water), newcomers (larger groups of inexperienced campers in public settings), and veterans (solo campers typically in remote, concealed settings). These studies all were conducted in temperate climates along the Interstate-5 corridor, suggesting the need for further refinement and acknowledgment of variations in region, urbanization, season, and climate. Media reports illuminate a diversity of NRCs, including seasonal workers in the ski or guiding industries, transient retirees living in RVs, teenage runaways, and many others (Tseng 2005, Henderson 2016a, 2016b, Peterson 2016).

US Forest Service Regulations and Response

The US Forest Service oversees 154 national forests and 20 national grasslands (193 million acres) in 43 states and Puerto Rico. National forests are managed for multiple uses and the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation. National forests have long served as stopping places for "pioneers," "transients," "travelers," "squatters" and displaced workers since the Great Depression and the Dust Bowl (Kusmer 2002). Forests have provided places to seek shelter, food, water, a feeling of safety or protection, and a setting for individuals seeking refuge, including war veterans and sufferers of stress-related conditions (Tweed 1989). Also, forests have served as a haven or hideout for refugees, illegal immigrants, outlaws, as well as those involved in illegal drug production or distribution (Tynon et al. 2001). There is a growing recognition by the public that national forests serve as temporary housing for some (Asah et al. 2012), and that homelessness and rural poverty are important aspects of environmental justice (Floyd and Johnson 2002). Salazar (1996) addressed the issue of equity and forest access by marginalized peoples, raising questions about which groups have access to natural resources and urging resource professionals to understand the needs of the poor who rely on forest resources.

Federal regulations stipulate that taking up residence on national forest system lands and facilities is illegal, as outlined by the Code of Federal Regulations (Title 36, Chapter II, Part 261). Under Subpart A, (general prohibitions), for "occupancy and use" (261.10), it is prohibited to build or maintain a road, trail, structure, fence, or enclosure, or to alter surface lands (e-CFR 2019). It also is illegal to build, reconstruct, improve, maintain, occupy, or use a residence on national forest lands without permission. This rule also prohibits

unauthorized use or occupancy of USFS lands or facilities and makes it illegal to abandon personal property. Under 261.11, it is prohibited to possess or leave exposed trash or unsanitary debris. In keeping with its decentralized approach to forest management (Kaufman 1960), the USFS allows each forest to implement its own policy regarding “stay limitations,” which are established by special order and periodically updated. Under Subpart B, it is prohibited to camp on USFS lands for periods longer than designated by a special order (261.58). Most national forests require that visitors vacate campsites after 14 days or 16 days, although some forests have no such stipulations. Based on preliminary interviews with forest officials and LEOs, we learned that enforcement of stay limitations also can vary by jurisdiction. For some units, visitors must leave the national forest boundary before being allowed to return to a campsite. For others, the camper may be required to move to another site within a certain distance, but can remain within the forest boundary.

Methods

Data presented here are based on a national survey of LEOs throughout all nine regions of the USFS. Informal interviews and discussions were conducted with officials in several national forest regions, which informed survey development. These conversations provided key insights to the issues associated with nonrecreational camping, management challenges, and law enforcement responses. We relied on the professional expertise and judgment of LEOs to determine whether they were discussing an NRC or other type of forest user. Conversations elicited stories about NRC incidents, revealing a diversity of campers and situations. We augmented this input with published literature and media accounts to develop a working typology of 10 nonrecreational camper types. We returned to a subset of interviewees for feedback and confirmation on the “types,” which were further verified with officials in the United States FS Washington Office. This resulted in a typology tested for this study (Table 1).

Surveys were designed to assess LEO perceptions on a range of topics. In addition to NRC types, survey questions focused on the frequency of NRC encounters, LEO perceptions of site and setting characteristics typically associated with NRCs, biophysical and social effects of residential camping, law enforcement responses, and strategies for addressing challenges associated with nonrecreational camping. Background

Table 1. Types of nonrecreational campers and definitions.

Nonrecreational camper types	Definition
Transient retirees	Individuals who appear to be elderly or retired and live in campers or recreational vehicles
Homeless adult groups	Informal gatherings of homeless adults, where group members may come and go
Solitary or antisocial individuals	Individuals who are living alone; some may be survivalists or separatists or antisocial
Families	Family groups of multiple generations, parents with children, or single parent families
Seasonal recreational or amenity workers	Recreational guides, ski instructors, or outfitters working in outdoor recreation or tourism
Fugitives	Individuals with outstanding warrants or who are wanted by law enforcement
Forest workers	Workers in logging, commercial harvest of mushrooms, berries, or floral greens
Communal groups	Organized and informal groups that intentionally choose to live in the forest and which may be nomadic
Students	Undergraduate or graduate students at universities who live in the national forest while they attend school
Teens, gangs or runaways	Groups of teenagers or young adults who may be runaways; some may be formal or informal “gangs”

questions were asked about the respondent’s region, setting, level of experience, and training.

The web-based survey was conducted over 6 weeks in the spring and summer of 2015. The survey was sent to 586 LEOs (field officers and special agents) in the US Forest Service. Invitations and subsequent reminders were sent by agency officials in the Washington Office of the USFS Law Enforcement and Investigations Division. We sent out an initial email announcement about the survey, followed by the full survey, then sent a reminder email, and then sent out two more reminder emails containing the weblink to the questionnaire on Qualtrics. We used SPSS to conduct standard social science statistical analyses, which informed our analysis. We received 290 completed surveys for an estimated response rate of 49 percent.

The Law Enforcement and Investigations Management Attainment Reporting System (LEIMARS), a USFS database of law enforcement incidents, was considered for examination of regional patterns in citations for occupancy and use violations. Our study team did not have system-wide access to this database. Furthermore, regional variations in reporting protocols inhibit use of LEIMARS to aggregate national trends or compare across regions. We were able to access the “Law Enforcement and Investigations Weekly Report,” which is a collection of notable law enforcement incidents for each USFS region. Cases in the weekly report are reported voluntarily, and not every region submits an entry each week. Moreover, the write-ups submitted are based on administrator discretion about what is deemed notable. They do not capture the full range of officer calls, nor are they representative of all incidents. Nonetheless, summary narratives provided useful insights about the myriad issues associated with officer encounters.

Our methodological approach allows us to explore the scope and complexity of homelessness and nonrecreational camping on public lands, but our ability to accurately measure trends or fully grasp the depth of this issue is limited. First, our study does not measure the actual number of people living on national forests and grasslands. Given the vast acreage that each LEO covers and the diversity of natural settings, it would be nearly impossible to measure or monitor residential use. Access to the LEIMARS database would have allowed us to more accurately assess longitudinal trends by region and potentially compare across regions. Connecting incident reports of stay violations or residential use violations to geo-positional information also could generate important information about spatial patterns of nonrecreational camping. Second, this study relies on the officer accounts of NRC incidents. We did not interview people taking up residence on USFS lands. Direct surveys or interviews with people living on the forest would reveal more information about reasons for forest habitation, living conditions and risks, and factors shaping their subsequent actions and resource uses. Our LEO surveys describing NRC encounters serve as an imperfect proxy for understanding trends and challenges associated with this vulnerable population.

Results

Respondent Characteristics

Respondents had served 14.6 years on average as a LEO (range: 2.5 years to 33 years) and had worked an average of 10.3 years in the USFS (range: less than

1 year to 30 years), and an average of 7.6 years at their current assignment (range: less than 1 year to 29 years). Most (58 percent) had received training from the USFS, whereas 23 percent received training from another federal agency. Twenty percent were trained by state, municipal, or other agencies.

Responses were received from all of the nine regions of the USFS (Figure 1). Nearly one-fourth of respondents (23 percent) came from the Pacific Southwest Region (California and Hawaii). The lowest percentage overall came from the Alaska Region (6 percent); however, it is important to note that there are far fewer LEOs posted in Alaska than other regions. Unfortunately, we do not know the total number of LEOs in each region in 2015, so it is difficult to ascertain whether any particular region was under or over-represented.

Assessment of Law Enforcement Weekly Reports

We reviewed a year’s worth of law enforcement weekly reports for 2015 to look for geographic patterns and incident characteristics. Of 2,625 entries in 2015, we identified 125 potential cases involving encounters with NRCs, which is close to 5 percent. Nearly two-thirds (63 percent) of these incidents occurred in the month of July, although NRCs were found on a year-round basis, particularly in warmer climates. Weekly summaries also indicated that the USFS Southwest Region (Arizona and New Mexico) was the most frequent reporter of NRC incidents (49 percent of all incidents), followed by the Rocky Mountain Region (22 percent). Entries revealed that residential camping on national forests is accompanied by a variety of concerns, such as drug use, production and distribution, domestic violence, outstanding warrants, and mental health challenges. Although most incidents involve camps with vehicles, tents, or trailers, some NRCs had constructed dwellings, dug underground cave dwellings or snow caves, cleared ground, created penned areas for dogs, and even raised small livestock.

Frequency and Trends in Encounters with Nonrecreational Campers

Officers were asked how often they encounter NRCs in their area of jurisdiction. We learned that 39 percent of LEOs who responded encountered NRCs at least once a week, and 75 percent encountered nonrecreational campers at least once monthly (Table 2). For about a quarter of LEOs, this is an occasional occurrence, happening a few times a year or less.

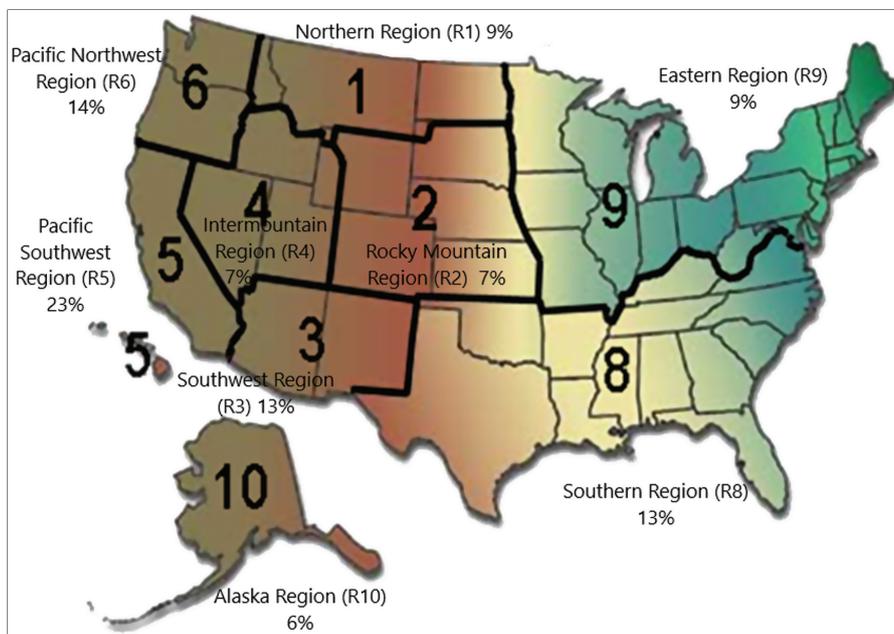


Figure 1. Distribution of study respondents in US Forest Service Regions.

Table 2. Frequency of encounters with nonrecreational campers by region.

US Forest Service Region	Once a week or more (percent)	1–3 times per month (percent)	A few times a year (percent)	Never (percent)
All regions	39	36	23	1
Northern Region (R1)	48	48	4	0
Rocky Mountain Region (R2)	52	29	14	5
Southwest Region (R3)	58	20	22	0
Intermountain Region (R4)	33	38	29	0
Pacific Southwest Region (R5)	42	43	12	3
Pacific Northwest Region (R6)	41	43	16	0
Southern Region (R8)	31	30	36	3
Eastern Region (R9)	4	38	58	0
Alaska Region (R10)	27	26	47	0

Nonrecreational camping occurred in all nine USFS regions with varying degrees of frequency. More than half of the officers in the Rocky Mountain Region and the Southwestern Region indicated that they encountered nonrecreational campers at least once weekly. The Northern Region also was higher than average, with 48 percent indicating weekly encounters. Far fewer LEOs in the Eastern Region and Alaska Region had regular encounters (weekly or monthly).

We asked LEOs whether their encounters with nonrecreational campers had increased, decreased, stayed about the same, or fluctuated since they began serving in their current position (Table 3). For nearly half of LEOs nationwide (47 percent), encounters with

NRCs had increased over time. Very few officers in any region believed the trend was decreasing. Again, we observed regional variations in perceptions about trends in nonrecreational camping. In both the Southern Region and the Rocky Mountain Region, 65 percent or more of the LEOs noted an increasing trend.

Types of Nonrecreational Campers Encountered

A list of 10 “types” of nonrecreational campers was developed based on groups identified in the literature (Southard 1997), informal interviews, and the weekly law enforcement summaries. Figure 2 depicts 10 NRC types and the varying rates of frequency for the past

Table 3. Trends in encounters with nonrecreational campers by region.

US Forest Service Region	Increasing (percent)	About the same (percent)	Decreasing (percent)	Fluctuating (percent)	Don't know (percent)
Overall	47	30	2	21	2
Northern Region (R1)	50	38	0	13	0
Rocky Mountain Region (R2)	65	25	0	10	0
Southwest Region (R3)	23	37	6	31	3
Intermountain Region (R4)	40	35	0	20	5
Pacific Southwest Region (R5)	47	27	3	23	0
Pacific Northwest Region (R6)	49	35	0	14	2
Southern Region (R8)	69	17	0	14	0
Eastern Region (R9)	38	38	0	21	3
Alaska Region (R10)	29	21	0	45	5

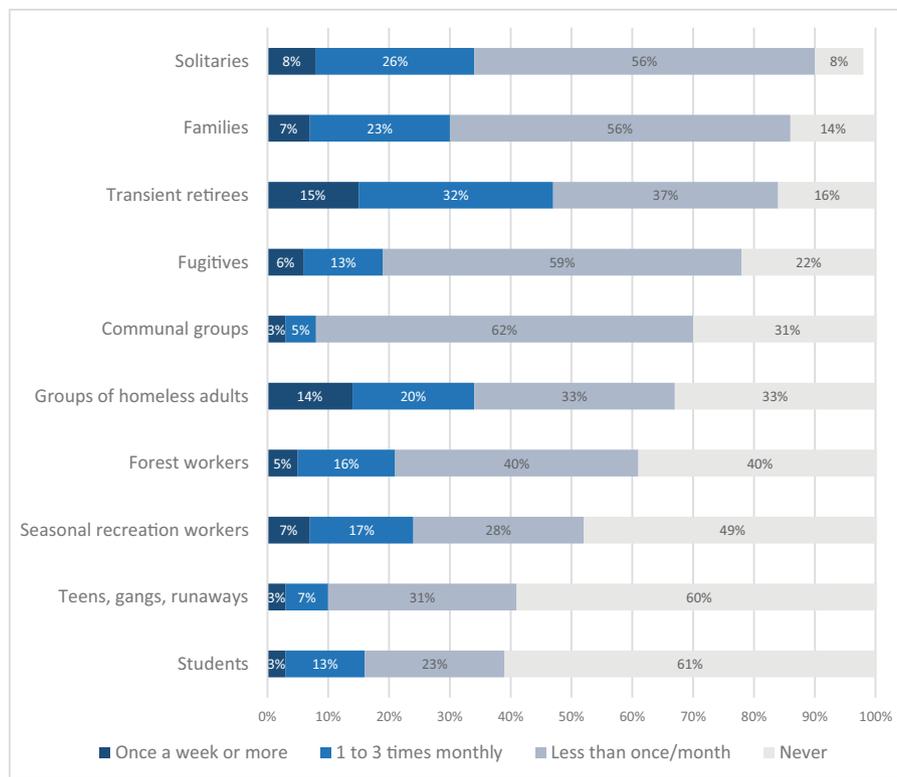


Figure 2. Frequency of encounters with various types of nonrecreational campers. The survey included the following categories: once a week, once a month, two to three times per month, several times per year, and never. Categories were collapsed for clarity.

year. In terms of overall encounters, “solitary/anti-social individuals” were encountered by 90 percent of respondents—more than any other group. This was followed by families (86 percent), transient retirees (84 percent), and fugitives (78 percent). When we look at the high-frequency encounters (once per week or more), transient retirees (15 percent) and homeless

adult groups (14 percent) are most common. When we combine weekly and monthly encounters, the “transient retirees” type surpasses all others, with nearly half of LEOs (47 percent) encountering transient retirees at least once a month. Some NRC types were encountered commonly, but at lower frequencies, such as communal groups and fugitives. Other

types, such as students and teen groups, were less common overall.

We observed seasonal variations in the types of nonrecreational campers LEOs encountered. We asked LEOs in what season they were most likely to encounter each NRC type, allowing them to select one option (year-round, spring, summer, fall, or winter). For all NRC types combined, nearly half (46 percent) were encountered year-round, and 39 percent were in summer. Broken down by NRC type, (Figure 3), we observe some NRCs appear common year-round, such as fugitives (78 percent), solitary/antisocial individuals (63 percent), groups of homeless adults (60 percent), and teen groups (53 percent). Transient retirees were found both year-round (45 percent) and in the summer (47 percent). Most other groups were more commonly encountered in the summer, including students (56 percent), communal groups (54 percent), and families (53 percent). Spring and fall seasons are less common for all NRC types, although forest workers appear more often than others in spring and fall, whereas communal groups are present in the spring more than other groups. Only seasonal recreation employees are notable for having a portion of “winter only” inhabitants.

We sought to understand overall trends by region and to assess whether regional variations occurred by NRC type (Table 4). To compare the proportion of “high-frequency” encounters by region, we used the

measure for weekly encounters found in Table 2 and created four index categories (high, medium, low, and very low), where “high” indicates 45 percent or more of LEOs cited weekly encounters, “medium” indicates 35–44 percent of LEO cited weekly encounters, “low” means that 25–34 percent of LEOs noted weekly encounters, and “very low” means that fewer than 25 percent of LEOs observed weekly encounters. Next, we developed categories for perceived rates of increase in LEO encounters based on data from Table 3. In our new metric, “high” means that 60 percent or more of LEOs in a region observed an increase in encounters, “moderate” indicates that 40–59 percent of LEOs in a region observed an increase, and “low” is for less than 40 percent of LEOs observing an increase. Finally, we listed all NRC types and marked an “X” for regions where at least 70 percent of LEOs indicated that they had encountered this NRC type over the course of a year. This allows us to see variations by region.

We can see that one region, the Rocky Mountain Region, has “high” rankings both for proportion of high-frequency officer encounters and for perceived directionality of trends. The Northern Region came out “high” on the encounter index and moderate in terms of perceived increase rates. Meanwhile, the Alaska Region is low on both indices. Some regions worth noting include the Southern Region, where high-frequency encounters are “low,” but many officers perceive an increase in encounters. Both the Pacific Northwest and

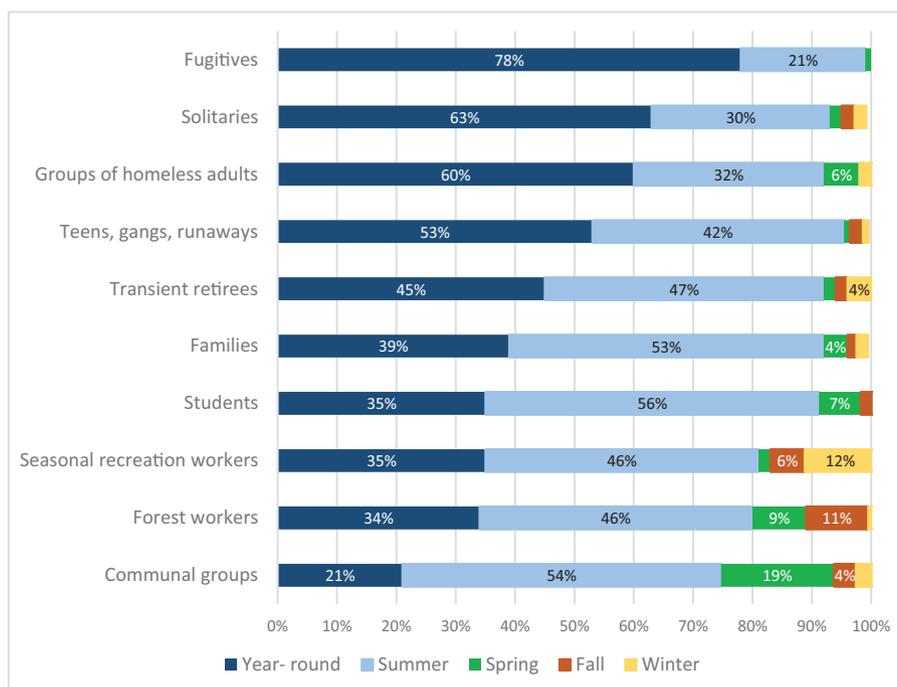


Figure 3. Encounters with nonrecreational camper types by season.

Table 4. Summary of regional differences in frequency, rate, and type of nonrecreational campers.

Region	High-frequency encounters*	Perceived increase in encounters [†]	Nonrecreational camper type, where 70 percent of LEOs in a region indicated having at least one encounter [‡]											
			Solitary Antisocial	Transient Retirees	Families	Fugitives	Homeless adults	Com-munal groups	Forest workers	Recreation workers	Students	Teens/runaways		
Northern Region (R1)	High	Moderate	X	X	X	X	X	X	X	X	X	X	X	X
Rocky Mountain Region (R2)	High	High	X	X	X	X	X	X	X	X	X	X	X	X
Southwest Region (R3)	High	Low	X	X	X	X	X	X	X	X	X	X	X	X
Intermountain Region (R4)	Low	Moderate	X	X	X	X	X	X	X	X	X	X	X	X
Pacific Southwest Region (R5)	Medium	Moderate	X	X	X	X	X	X	X	X	X	X	X	X
Pacific Northwest Region (R6)	Medium	Moderate	X	X	X	X	X	X	X	X	X	X	X	X
Southern Region (R8)	Low	High	X	X	X	X	X	X	X	X	X	X	X	X
Eastern Region (R9)	Very low	Moderate	X	X	X	X	X	X	X	X	X	X	X	X
Alaska Region (R10)	Low	Low	X	X	X	X	X	X	X	X	X	X	X	X

*For evaluating frequency of encounters, “high” means 45 percent or greater weekly encounters; “medium” means 35–44 percent weekly encounters; “low” means 25–34 percent weekly encounters; “very low” means fewer than 25 percent weekly encounters.

†For evaluating perceived trends, “high” means 60 percent or more of responding LEOs perceived an increase in their region; “moderate” means 40–59 percent of respondents perceived an increase; “low” means below 40 percent of respondents perceived an increase.

‡The presence of nonrecreational campers (marked by “X”) is based on regions where 70 percent or more responding LEOs in that region encountered these types at least once during the year.

Pacific Southwest regions are at the “medium” and “moderate” levels for high-frequency encounters and increase levels, respectively. In viewing NRC types across regions, we note one consistent group across all regions was the “solitary/antisocial individuals.” Transient retirees were found in most areas, except the Eastern Region. Forest workers appeared more frequently in the Rocky Mountain, Intermountain, and Pacific Northwest Regions, whereas recreation workers were most often found in the Northern, Rocky Mountain, and Alaska Regions. Students also were more often found living in forests in the Rocky Mountain Region. Comparing by region, the Rocky Mountain Region has the greatest diversity of types of nonrecreational campers, where the Eastern Region had the least diversity.

Discussion

Recession, unemployment, housing shortages, and rising housing prices are all systemic processes that foster economic conditions that can contribute to homelessness (Shinn and Weitzman 1990, Mitchell 2011, Somerville 2013). Rising homeless rates in communities where the volume of shelter beds is insufficient to meet demand have led some to sleep outdoors. Rising housing prices, particularly in mountain resorts and amenity destinations, nudge workers into precarious housing choices (Henderson 2016b). Our results suggest that national forests and grasslands are absorbing a portion of the overflow of homeless individuals and families. Public lands can provide shelter, cover, food, freedom, and protection for vulnerable and marginalized groups, for those seeking quiet, privacy, or communion in nature (Salazar 1996, Asah et al. 2012). Yet, long-term camping beyond the limits stipulated by a special order is illegal and can result in fines or relocations. It is also associated with risks to safety of USFS personnel, recreational visitors, and other nonrecreational campers (Neild and Rose 2018, Baur and Cerveny 2019). Additionally, long-term nonrecreational camping is associated with impacts on the natural environment, resulting in cleanup and mitigation costs to public agencies (Baur et al. 2015, Neild and Rose 2018).

The purpose of this article is to draw attention to what appears to be a growing forest population and to provide information that may spark a dialogue among policymakers, land managers, and LEOs. Because we sampled the entire population of LEOs and we obtained a high response rate, we have high confidence that our data present an accurate, if incomplete, depiction of homelessness on national forest lands. The

diversity of nonrecreational campers found in national forests presents unique challenges for land managers, as each group may have different needs, camping patterns, and preferences, as well as a range of health and safety concerns. In managing forests and grasslands, public officials consider resource conservation goals along with public safety and recreation opportunity. Cleaning up homeless encampments diverts funds and staff time from other public services and programs. Further, nonrecreational campers may be living in unsafe or unsanitary conditions or have health care and social service needs that go unmet if they remain hidden in forests. Our findings raise questions about the agency’s role in responding to an increasing presence of long-term inhabitants on public lands and how to best manage the associated challenges.

Encounters with nonrecreational campers vary by region. In Regions 1, 2, and 3, all west of the Mississippi River, encounter rates appear to be higher than the rest of the country, whereas encounters in the northeast and northcentral states as well as Alaska were far less frequent. The reasons for these differences are unclear, since several of the top cities in the US for homelessness are in the Eastern Region (e.g., New York, Washington, DC, Philadelphia, and Chicago) (National Alliance to End Homelessness 2016). Encounter rates in national forests were moderate in the Pacific Northwest and Pacific Southwest, which includes several cities with high rates of homelessness, such as Seattle and San Francisco (National Alliance to End Homelessness 2016). This regional discrepancy could be explained by the distance of Eastern cities to national forests. It also is possible that cities in the Eastern Region have more available sheltered housing, or it is more socially acceptable to live in shelters. Weather and climate also may play a factor. Some forests in the southwestern, southern, and coastal Pacific states are habitable on a year-round basis.

The Rocky Mountain Region had both the highest encounter rates and the greatest variety of nonrecreational camper types, which suggests systemic challenges in that region related to housing or economic transformation. Recent media accounts documenting incidents (fire, trash, displacement) associated with nonrecreational campers throughout Colorado reinforce this perception (Healy 2016, Henderson 2016a). Future research focusing on Colorado may help us better understand factors contributing to homelessness on public lands in the state. One news story suggested that the state’s recent legalization of marijuana has attracted domestic in-migrants seeking employment or other benefits from this growing industry (CBS News 2014). However, our

current understanding of the extent and nature of the homeless populations on public lands in Colorado and nationwide remains largely rudimentary.

This study builds on Southard's (1997) typology of homeless campers, which identified "separatists," "voluntary nomads," and "economic refugees." We parsed voluntary nomads into communal groups and transient retirees, who also choose to live in the forest and travel alone or in loose groups. We added several new types of forest dwellers: students, teen runaways, fugitives, and seasonal workers, to name a few. Some of these groups proved to be small or regionally specific. For example, seasonal recreation workers in the ski industry or in guiding appear in Colorado and, to a lesser extent, Alaska, where affordable housing close to jobs could be a factor. Transient retirees constitute a substantial subpopulation of forest inhabitants especially in the southwestern and Pacific coast states, where conditions appear favorable to a vehicle-based lifestyle. Future studies may consider a greater variety of resource industries (e.g., oil workers, herders, and prospectors) and include a type for marijuana cultivation, which is an illegal activity on federal lands.

Variations in types of nonrecreational campers suggest the need for different services and strategies to address the needs of marginalized peoples (Fazel et al. 2014). Families with children and elderly individuals are particularly vulnerable in forest settings, with special needs for health care, social services, education, and safety. Homeless groups were especially common in the southwest and the Pacific coast, both identified as areas with high rates of unsheltered homeless (US HUD 2016). Unsheltered homeless persons are more likely to experience health challenges, including substance abuse, and may require social services (Meanwell 2012). Communal groups present challenges associated with large concentrations of people. Fugitives present safety risks for officers and other forest visitors. Understanding regional variations by type can help resource managers to prepare for certain population groups and develop approaches and strategies that cater to these groups. Future training manuals of LEOs may draw from our knowledge of nonrecreational camper types and observed proclivities toward particular regions. Proactive consideration of nonrecreational camper types and associated service needs may help to guide officer responses.

Officers enforce stay limitations at campsites, as well as existing laws about built structures, sanitation, and resource damage (Baur and Cervený 2019). For many homeless and long-term campers, forests provide

ecosystem benefits, including shelter, food, fuel, clean water, and solitude (Asah et al. 2012). Homeless and nonrecreational campers on national forests constitute socially vulnerable populations to be given special consideration (Floyd and Johnson 2002). Many are low income, and therefore represent a special population that must be considered under Executive Order 12898 in terms of how agency actions and policies affect homeless individuals and their uses of national forests (US Office of the President 1994). Additional research would generate new insights about the contributing factors and daily realities, decisions, and difficulties faced by this vulnerable group. Our study results indicate that there are also many different types of potentially vulnerable populations residing illegally on national forest lands, each invoking unique consideration. For example, elderly residents may need specialized medical responses or involvement from social services. Homeless women (with or without children) represent an especially vulnerable group with needs for referrals to human service agencies. Understanding more about various subsets of forest visitors may help agency officials to develop programs, services, and partnerships that could improve health options, address public safety concerns, and mitigate biophysical impacts of long-term encampments.

Findings are based on proxy metrics of nonrecreational campers as reported by the officers surveyed. We did not investigate nonrecreational campers on national forest lands directly. Although something of a limitation, LEO accounts were deemed supportable given the difficulties of achieving direct contact with forest dwellers. Future research on homelessness and long-term camping would benefit from direct interviews with NRCs, who could explain first-hand the factors that bring them to the forest and the realities and risks of long-term forest habitation. Finally, responses received were based on those campers whose whereabouts had been discovered by LEOs, forest officials, or visitors. It is possible that more remote encampments were prevalent, but remain undisclosed.

Conclusion

With nearly half of all USFS law enforcement personnel from all nine USFS regions responding to our survey, we found that about three-quarters of respondents reported encountering homeless campers on their forest at least once per month. LEOs in the northern and western portions of the US appear to encounter NRCs more commonly than those in the east or in Alaska. LEOs reported that the incidences of responding to

NRCs have been on the rise. In general, LEOs reported that homeless adult groups and transient retirees (living in RVs) are most commonly encountered. Regional differences in types of NRCs were observed in survey data. Additionally, seasonal variations were also identified, suggesting that the USFS will need to consider regional and seasonal variation when responding to management needs that now include homeless users of national forest lands.

National forests are managed for a variety of public uses, and regulations are designed to protect natural resources, ensure public safety, and provide access for a diversity of forest users. USFS law enforcement personnel are those most directly tasked with ensuring adherence to rules, regulations, and laws by visitors to national forests. USFS law enforcement personnel are well-trained professionals who can be counted on to fulfill their duties and protect natural resources and visitors alike, but with the rise in people living on public lands, they are confronting a challenge previously unforeseen. Although this study presents only a glimpse of the challenges USFS LEOs face in trying to manage nonrecreational camping, we are hopeful that it will further propel decisionmakers within the USFS and in communities neighboring national forest lands to seek practical solutions to homeless occupancy of public lands.

Supplementary Materials

Supplementary data are available at *Journal of Forestry* online.

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