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"We Have Some Growing Pains": Developing A New Regional Recreation Conflict Model Through Examination of the Growth of Mountain Biking

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ABSTRACT

Mountain biking (MTB) is growing in popularity nationwide. This trend is mirrored in the Northern Forest and intensified during COVID-19. The growth of MTB represents an opportunity for rural communities to transition to a new economy centered on forest-based recreation to attract new individuals, called lifestyle seekers, who are interested in moving into communities with recreation opportunities. Questions about the impacts MTB has on forests and forest-dependent communities place pressure on natural resource managers and decision makers. We explored questions of impacts and conflict in rural communities through semi-structured interviews and focus groups. We analyzed these interviews using the Expanded Conflict Framework as a theoretical frame. Our results highlighted that the influx of recreationists into forested communities had positive impacts on local economies but more negative impacts on other social factors, such as community cohesion. We propose a new model, The Regional Recreation Conflict Model, for thinking about these tensions.

Introduction

The concept of lifestyle seeking, sometimes referred to as amenity migration (Gosnell and Abrams 2011), rural or disaster gentrification (Nelson, Oberg, and Nelson 2010; Sutherland 2022), rural renaissance (Åberg and Tondelli 2021) or lifestyle migration (Benson and O'Reilly 2009), has long been part of the academic literature. Scholars have studied both the positive (e.g. economic development) and negative impacts (e.g. gentrification) of lifestyle seeking associated with recreation amenities in rural areas. This work is related to research on Boomtowns, which are characterized by a surge in population, increased economic activity, and the rapid construction of infrastructure to accommodate the growing needs of a community (England and Albrecht 1984; Jacquet and Kay 2014; Park and Stokowski 2009).

Recently, new trends in outdoor recreation, including the rapid growth in the sport of mountain biking (MTB) (International Mountain Bike Association, 2019), coupled with a tight housing market and the occurrence of the COVID-19 pandemic (Carson 2023), have resulted in a new wave of lifestyle seeking in the Northern Forest Region. The Northern Forest Region stretches across northern New England (Maine, New Hampshire, and Vermont) and into the eastern corner of New York State. All the New England states, including those in the Northern Forest Region, witnessed extensive domestic immigration between 2019 and 2022 (Sullivan 2021), and many new residents viewed their new, COVID-era work-from-home schedule as an opportunity to relocate to the Northern Forest Region to be closer to outdoor recreation opportunities (Carson 2023).

Previous research demonstrates that this type of lifestyle seeking can result in a mix of positive and negative outcomes, as existing residents may have varied attitudes to newcomers and the growth and development they bring to rural communities (Brennan and Cooper 2008; Gosnell and Abrams 2011; Gallent, Stirling, and Hamiduddin 2023; Park et al. 2019). Recent work by Lee and Perry (2023) demonstrates positive tourism benefits to local economies in rural communities with MTB amenities. The goal of our paper is to explore the impacts of the growth of MTB and the associated lifestyle seeking in the Northern Forest Region. Using the Expanded Conflict Model (Manning et al. 2022) as a theoretical frame, we took a qualitative approach to this research and collected focus group and interview data to explore lifestyle seeking and its impacts in the region. Our results demonstrate the range of social impacts, including community and regional level tensions. We propose a new model, the Regional Recreation Conflict Model, for thinking about these tensions. Finally, we make recommendations for future research in this area.

Background

Mountain Biking and the Northern Forest

The Northern Forest Region is a geographically distinct area of over 30 million acres, predominantly privately owned land, including 34 counties across Maine, New Hampshire, Vermont, and New York (U.S.) (Northern Forest Center 2023). The loss of the manufacturing timber and paper industries starting in the 1980s has put pressure on rural economies to diversify (*The Northern Forest* 2024). Alongside economic concerns, threats from declining population (Sullivan 2021) and heritage preservation (Park et al. 2019) represent serious concerns for local officials. Northern Forest communities focused on building an "outdoor recreation economy" as a strategy for sustainable development to mitigate economic concerns (Wildermuth 2022), promote forest stewardship (Northern Forest Center 2023) and foster sustainable communities. Recreation-based economies are important nationwide and are particularly critical in rural areas (Wildermuth 2022), especially in forested communities (Kruger et al., 2008).

Yet, focusing on an outdoor recreation economy is not a panacea. Winter tourism on natural surfaces (e.g. the ski industry) is threatened by climate change (Perry et al. 2018) and communities have begun investing in infrastructure that is not snow-dependent, such as MTB recreation (Kelsey, Chase, and Long 2019; McGowan 2018). MTB was already viewed as an opportunity for rural development pre-pandemic (Kelsey, Chase,

and Long 2019; McGowan 2018) and grew in popularity in the following years. Economic impact studies suggest that MTB can be an important economic driver for rural communities (Boozer 2012); the economic contribution from MTB grew 8.1% between 2012–2019, representing the largest growth of 43 examined recreation activities (BEA 2023). The International Mountain Biking Association (IMBA) saw a record increase in membership, building of new trails, and additions of local chapters prior to 2020 (IMBA 2019). New Hampshire and Maine experienced similar trends in the rising popularity of the sport that continued through 2020–2022 (the most intense years of the COVID-19 pandemic) as individuals sought opportunities to recreate away from crowds in forests (Derks, Giessen, and Winkel 2020; Morse et al. 2020). The Vermont Mountain Bike Association (VMBA) doubled its local chapters from 2012–2021 (Vermont Mountain Bike Association, 2019). This increase coincided with a nationwide shortage of mountain bikes.

In response to the economic stresses and growing demand for MTB discussed above, an international collaboration called Bike Borderlands was established in 2017. Bike Borderlands is part of a larger effort led by the Northern Forest Center, a non-governmental organization, to cohesively promote the region as a MTB destination. Their mission is "to energize rural communities and help more people discover this part of the world, move here, start a business, and Live the New Forest Future" (Bike Borderlands 2024). MTB offers the potential for communities in the Northern Forest to transition toward a tourism-based economy (Kelsey, Chase, and Long 2019; McGowan 2018).

Impacts of the Growth of Mountain Biking

Although MTB represents an opportunity for rural economic development in places like the Northern Forest Region, scholars and managers alike have raised questions about the ecological and social impacts of this activity. Crowding, for example, has been an ongoing issue in many recreation settings and can often lead to user conflicts (Bakhtiari, Jacobsen, and Jensen 2014; Fix, Loomis, and Eichhorn 2000; Santos, Mendes, and Vasco 2016). Crowding can cause trail erosion, which has historically been a concern with MTB (Pickering et al. 2010; Thurston and Reader, 2001) in addition to potentially negative impacts to wildlife (Bötsch et al. 2018; Burgin and Hardiman 2012; Lowrey and Longshore 2017; Scholten, Moe, and Hegland 2018). Arguments supporting MTB often emphasize that any negative ecological impacts are not dissimilar from other forms of forest-based recreation (Marion and Wimpey 2007; White et al. 2006).

Mountain biking may also result in social impacts attributed to the increase in recreation-based visitation into rural communities. The influx of newly arriving residents to rural communities increased during the initial years of the COVID-19 pandemic (Carson 2023; Sullivan 2021). As remote jobs became prevalent, people relocated or bought second homes in rural areas rich with natural resources, a phenomenon referred to as "panic mobility" (Cohen 2020). Scholars have adopted various other terms used to describe this phenomenon, such as rural or disaster gentrification (Nelson, Oberg, and Nelson 2010; Sutherland 2022), rural renaissance (Åberg and Tondelli 2021) or lifestyle migration (Benson and O'Reilly 2009). In the United Kingdom, this phenomenon was called the "urban exodus" (Rowe et al. 2022). More broadly this behavior is referred to as amenity migration or counterurbanism (Abrams

and Bliss 2013; Gosnell and Abrams 2011; Hjerpe, Hussain, and Holmes 2020; Mitchell 2004) and can have positive impacts on rural communities, such as opportunity for regrowth (Åberg and Tondelli 2021). The motivation for relocation can vary, but the seasonal or permanent relocation to rural areas to seek a different way of life is common among them (Gosnell and Abrams 2011).

Collectively, these terms discussed above refer to the same concept. For the purposes of this study, we use the term "lifestyle seeking." Although this term is not as widely used as those mentioned previously, we have adopted it with the reasoning that it does not minimize the experiences of persons who are migrants. Considering the motivations behind the movement of relatively privileged people who are seeking a certain type of lifestyle by choice and not by force or coercion is a distinction scholars need to make, and so we sought to avoid any terms relying on the term "migration" (Benson and O'Reilly 2016). Lifestyle seeking, as a term, has been used previously to describe tourists who are interested in the authentic experience of local culture, events, art, museums, and local foods (Glazyrina 2017).

Lifestyle seeking, whether permanent or seasonal, can lead to negative impacts. This process is not unlike gentrification, which often results in the displacement of people, traditions, and natural environments (Åberg and Tondelli 2021). These communities may face a rise in property taxes (Carson 2023), a higher cost-of-living, new pressure on infrastructure, such as parking and roads (Reinhardt et al. 2024), and an increased demand for services like health care facilities and law enforcement (Moss, Glorioso, and Krause 2009). For example, one study showed that in Carroll County, New Hampshire, pandemic era in-migrant income exceeded local residents' income by 84%. That same study found that in 29 of the 34 counties comprising the Northern Forest, in-migrants had a higher per capita adjusted gross income compared to existing residents (Carson 2023). Due to the influx of new people to a given area, a shift can occur where shared knowledge, local heritage, and typical day-to-day patterns are transformed by new ideas, desires, and behaviors (O'Reilly and Benson 2016). These changes can happen in a cyclic pattern (e.g. seasonal tourism) or permanently (e.g. lifestyle seeking).

Lifestyle seeking is a complex topic. In the context of MTB in the Northern Forest, that complexity is further deepened because of the legacy of Colonialism in North America, and the subsequent trends in land ownership and tenure. Further, there is a long history of exploitive sports and recreation activities on Indigenous land in North America, for example with the Olympic Games hosted on Indigenous territories without authentic Indigenous involvement (O'Bonsawin 2013). MTB closely mirrors this history of exploitation; the activity was largely pioneered by White men who were often riding on land without permission, a trend mirrored in other sectors of outdoor recreation (Ho and Chang 2022; Chen and Mason 2019). MTB can certainly be a tool for equity (e.g. Cherrington and Brighton 2024; Smith et al. 2024). However, there is also the potential for an increase in MTB to reinforce inequalities. This potential is pronounced if the development of trails and infrastructure, the economic barriers to access mountain biking participation, and subsequently the shaping of rural communities, are established ways that preferences the ideas and desires of only the dominant demographic groups in outdoor recreation, which tend to White, male, and affluent (Ho and Chang 2022; Chen and Mason 2019).

Thus, the simultaneous growth of outdoor recreation and trends in lifestyle seeking have the potential to result in increased conflict (Park et al. 2019). Tourism and recreation scholars have long studied recreation conflicts. The Expanded Conflict Model (see Figure 1) (Manning et al. 2022), the foundation for which was first described by Jacob and Schreyer (1980), defined conflict as the interference of an individual's recreation goal that is directly interpreted to be attributed to the behavior of another individual or group of individuals. This early model identifies four classes of conflict precondition types: (1) activity style—the various personal meanings assigned to an activity; (2) resource specificity—the significance attached to using a specific recreation resource for a given recreation experience; (3) mode of experience—the varying expectations of how the natural environment will be perceived; and (4) lifestyle tolerance—the tendency to accept or reject lifestyles different from one's own (Jacob and Schreyer 1980). Later, expectation and safety were added to this theoretical model as empirical research found that these preconditions of goal interference played a role in sensitivity to conflict and conflict itself (Carothers, Vaske, and Donnelly 2001; Vaske et al. 2004) (Figure 1). Existing theoretical models of recreation conflict parse out two distinctive sources of conflicts: interpersonal and social values (Manning et al. 2022). Interpersonal conflict is defined as the physical presence of an individual who impedes the goals of another via direct contact between them (Jacob and Schreyer 1980). Social values conflict concerns the tension between individuals' or groups' beliefs and values and can be elicited by either direct or indirect contact (Carothers, Vaske, and Donnelly 2001). Although these two types differ, Vaske, Needham, and Cline (2007) assert that they exist on a continuum. Indeed, each of the six classes of conflict precondition types can be experienced by individuals via direct or indirect contact (Figure 1).
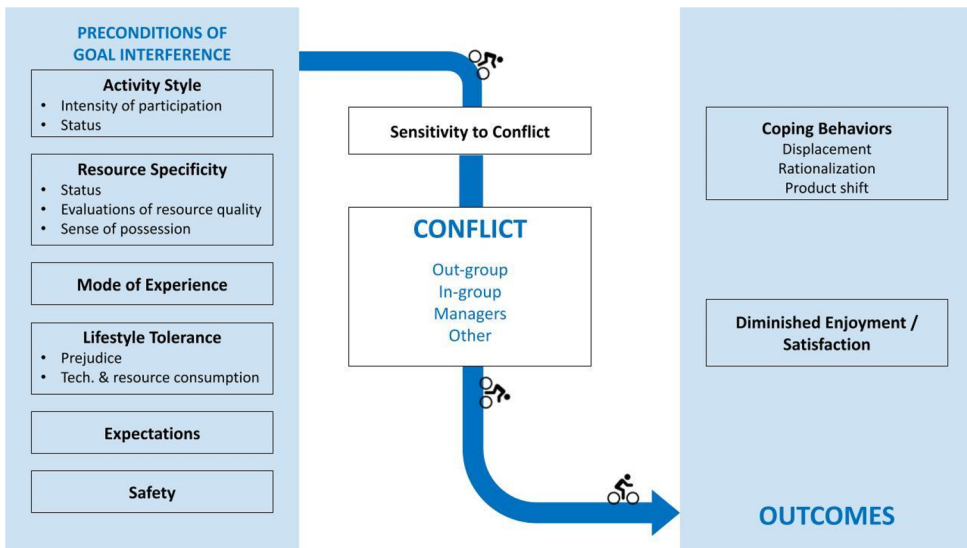

Figure 1. Expanded conflict framework adapted from Manning et al. (2022), which depicts the preconditions of goal interference that may lead to conflict sensitivity, conflict, resulting coping mechanisms, and, ultimately, diminished satisfaction.

Research Objective

Although research on the economic and ecological impacts of MTB have been well-studied, the social impacts have been relatively understudied, especially in the Northeastern U.S. A recent systematic literature review of MTB research found that, globally, 34.7% of research on MTB related to economic impacts and 41.3% researched the abiotic and biotic impacts of MTB (Kuklinski et al. 2024). Strikingly, while the majority of studies were categorized as containing social impacts (70%), only 17.3% ($n = 26$) related to wellbeing (Kuklinski et al. 2024, 5). Kulkinski and colleagues defined wellbeing as topics related to knowledge, motivations, crowding, perceptions, preferences, travel patterns, and user conflict. Additionally, only two studies in their corpus stemmed from research from the Northeastern U.S., both pertaining to Vermont. A distinct knowledge gap exists, and broader scale community impact studies are needed to shed light on issues of conflict of all relevant groups (Perry et al. 2020). Given the constellation of factors at play, we sought to use the Expanded Conflict Model (Manning et al. 2022) as a theoretical frame for understanding lifestyle seeking and its impacts on the Northern Forest. Our specific research questions were: (1) What are the social impacts associated with the growth of MTB in the Northern Forest Region? (2) What, if any, conflict arises as a result of increased recreation in communities that invest in MTB infrastructure? (3) What, if any, community-wide benefits are associated with the growth of MTB in these communities?

Methods

We conducted qualitative research in ten communities across the Northern Forest to explore conflict with the growth of MTB and associated social impacts. "We" refers to the entire research team, which was composed of one graduate student and three faculty members. One of the faculty members is also a cyclist, while the other members of the team are not. This mix of perspectives protected against bias and allowed us both in-depth understanding of the MTB community, as well as outside perspectives. We hosted three large group workshops, two of which included four breakout focus groups (8 total focus groups), and conducted 15 interviews (Glesne 2016). These data collection methods were appropriate given our focus was a relatively homogeneous study population (individuals involved with the growth of MTB in the Northern Forest). Work by Hennink and Kaiser (2022) demonstrates that, in empirical studies of relatively homogenous populations, saturation is typically reached with a narrow range of interviews (9–17) or focus group discussions (4–8).

To conduct the group workshops and focus groups, we hosted two private online meetings in 2021 and 2022 and one in-person panel discussion in 2023. We used stratified sampling (Robinson 2014) and invited individuals who were directly involved with or impacted by the growth of MTB throughout the Northern Forest, as well as individuals directly involved with similar trends in the Upper Midwest. The group workshops included over 100 individuals representing 32 organizations (Table 1). We then sorted workshop participants into breakout rooms by sector (federal, state, and private natural resource managers, recreation and town planners, trail advocates, community residents, and local business owners) and by geography. We conducted these

Table 1. List of organizations represented in the focus groups.

Types of organizations represented	Organization name
Trail Networks	Inland Woods and Trails
	Copper Harbor Trails
	Kingdom Trails
	Carrabassett Valley Trails
	Craftsbury Outdoor Center
Advocacy Groups	Michigan Mountain Bike Association
	New England Mountain Bike Association
	League of Michigan Bicyclists
	BarkEater Trail Alliance
	Vermont Mountain Bike Association
	People for Bikes
Researchers and University Affiliates	Applied Trails Research
	University of Vermont
	Forest Ecosystem Monitoring Cooperative
	University of Vermont Extension
	Michigan State University
Public Land Managers	Washtenaw County Parks
	Michigan Department of Natural Resources
	Maine Chamber of Commerce
	State of Vermont Forests, Parks, and Recreation
	United States Forest Service
	Wayne National Forest
	Green Mountain National Forest
	White Mountain National Forest
Non-profits	Bike the Borderlands
	Northern Forest Center
	New Hampshire Charitable Foundation
	Coos Cycling Club
Municipalities	Town of Carrabassett Valley, Maine
	Town of Gorham, New Hampshire
Small Businesses	Steam Mill Brewing
	Big Day Brewing

smaller focus groups to identify the most pressing questions and concerns regarding the growth of MTB in participants' communities. Ideas from these conversations were sorted into social, environmental, or economic impact categories (Table 2).

Recognizing that social impacts of MTB are broad, we used the results from the focus groups to identify research questions. Specifically, we identified focus group participant-sourced questions and areas of concern (Table 2), as articulated by the collective voice of relevant participants. Some of the questions we were most interested in from the social impact category included: What on-trail conflicts are occurring? Do local residents feel MTB is just as accessible to them as it is for tourists? Is safety at road crossings due to steepness, curves, and blind spots a concern that spans the region? How can we open lines of communication among researchers, land managers, and bikers?

To explore the questions, we completed 15 in-person or virtual interviews across 10 trail networks in the region in 2023 with IRB approval (status exempt). We identified interview locations based on membership in the Bike Borderlands initiative. Populations details, as reported by the U.S. Census Bureau (2020) and Statistics Canada (2021) are included in Table 3. Interviewees included land managers, local business owners, and members of MTB advocacy groups. We used snowball sampling technique to identify trail managers at each of our 10 locations, followed up with other potential interviews via word of mouth (Noy 2008; Weech 2023), and continued adding

Table 2. Categorized research questions posed by relevant groups in the two focus groups.

Impact	Impact focus	Research questions
Social	Experience	How can we thoughtfully examine conflicts?
		What are the changing preferences? (e.g. e-MTBs)
		How can we increase access for local residents?
		How can we get states in our region to have best management practices for the trails?
	Wellbeing	Does MTB foster positive health and wellbeing?
		How can we address the dangers between pedestrians, bikers, and drivers on the roads?
	Culture	How can we foster connections with new bikers?
		How can we educate new bikers/better educate current bikers?
		How can we open lines of communication between researchers, land managers, and bikers?
		What are the perceptions of mountain bikers?
		How can we better support MTB stewardship?
Environmental	Habitat	How can we get more studies on recreation ecology, impacts to ecosystems, wildlife, etc.?
		Does the construction of trails support forest conservation?
		How are e-MTBs impacting forests?
	Infrastructure	What is the impact of infrastructure outside of the trails themselves (e.g. new houses to accommodate users)?
		What is the impact of constructing rogue features on trails?
		What are the maintenance demands of a trail? What is its life cycle?
		How to increase capacity with limited infrastructure?
		How to capture congestion issues?
Economic	Development	Can we get data to help allocate resources based on economic impact and need?
		What are the discrete economic benefits of MTB?
		What are the economic impacts of the different uses, mixes, etc.?
		Is it possible to capture the economic impacts of the places conserved through trail user dollars?
		Is there a way to compensate landowners?
		How to understand the dynamic of trails increasing quality of life, and is that driving up home prices and development?
	Governance	How can we work through political fluctuations?
		How can we collaborate with legislators and other user groups?
		What is the actual impact of MTB versus other user groups in terms of dollars spent? Is that related to density and numbers?

Table 3. Trail network locations and population of permanent residence as of last census.

Trail network name	Location	Population of permanent residence
Barkeater Trails Alliance	Lake Placid, NY	2,205
Carrabassett Valley Trails	Carrabassett Valley, ME	673
Inland Woods + Trails	Bethel, ME	658
Bethlehem Trails Association	Bethlehem, NH	826
Kingdom Trails	East Burke, VT	94
Craftsbury Outdoor Center	Craftsbury, VT	1,343
Circuits Frontières	East Hereford, QC	282

interviews until saturation was reached (Hennink and Kaiser 2022). Interview questions included topics around community change, conflict, job creation, social capital, equity and justice, and general recreation trends.

All interviews, workshops, and focus groups were audio recorded and transcribed using OtterAI software. One researcher also took detailed notes throughout data collection. The transcriptions and notes were uploaded to NVivo 14 and qualitatively analyzed using Expanded Conflict Model (Figure 1) components (Manning et al. 2022). We selected the Expanded Conflict Model because conflict was an underlying theme that we heard informing each of the questions generated during the focus groups. Following Glesne (2016), we created a codebook in which each precondition

for goal interference was a theme with embedded sub-themes (e.g. activity style with sub-themes of intensity of participation and status). Our coding took an iterative approach. Specifically, we followed Eisenhardt's (1989) process for theory development by first reviewing relevant literature, including the Expanded Conflict Model, then examining our data to expand to add nuance to existing knowledge, and finally referring back to the relevant literature to create theoretical contributions. To validate our coding interpretation, we had two members of the research team independently code three of the same interview transcripts (O'Connor and Joffe 2020). We then ran a query in NVivo 14 to compare coding, which resulted in an 87% intercoder reliability metric. We discussed areas of disagreement, and reduced the use of superfluous codes, to ensure coding validity and reliability (Glesne 2016).

Results

Qualitative coding revealed themes that were connected to conflict and did not fit easily into the Expanded Conflict Model coding framework (Figure 1). Rather, these conflict-related themes were broader to the community level, as opposed to the level of the individual during their recreation experiences. One interviewee summed it up when they stated, "So we have some growing pains being a relatively new network. But for the most part, I think the conflict is minimal around here." Thus, we coded for community-level themes that were not adequately captured by the original conflict framework. They represent an example of themes Perry et al. (2020) have noted as a necessary area for further research: integrated scales of visitor use management, extending spatially beyond a recreation site into a community and topically beyond discrete user conflict to associated community challenges.

Covid-Era Lifestyle Seeking

The first trend that emerged through our qualitative coding was the perception among interviewees that the Covid-era influx of people was strongly tied to recreation amenities, specifically MTB infrastructure. Interviewees voiced their belief that, because the pandemic ultimately allowed people to work remotely, many individuals decided to relocate so that they could be closer to MTB trails. In short, our interviews and focus groups revealed that many relevant groups believed that the 2020–2022 trend in lifestyle seekers was related to the natural resource-based recreation amenities in these locations. We heard from interviewees that the increased MTB ridership during this time influenced the rate at which new trails were built to accommodate new users. For example, one interviewee stated:

> More people are coming to ride bikes, we're putting more trails on the ground, we're taking care of the trails that we have… Yeah, COVID saw some times where there was an influx of people that, you know, moved out of the urban areas and moved to the mountains to sort of utilize their second homes and whatnot. And yeah, the explosion of bicycles in the region during that time was definitely huge.

Another interviewee described how the remote jobs allowed many people from other places to relocate to rural areas of the Northeast. They described the lifestyle

seeking when they commented, "Younger generations want to move out of the city—Boston, New York—and work remote jobs [in the] North to be able to recreate outside much more often." Another interviewee echoed this sentiment, saying, "In 2020, Carrabassett Valley had 670 full time residents. We saw people move in from other states during COVID." They went on to describe how the local town government in Carrabassett Valley uses data from cell phones to track where people are coming from. People coming from other areas in Maine were the largest majority, but New York and Connecticut were tied for second as the most people originating from there.

Lifestyle Seeking and Population Decline

Our data also revealed that, for many communities in this region, attracting new residents was an explicit goal of developing MTB infrastructure. Interviewees, especially town officials and trail managers, expressed concerns about declining populations in northern New England. They explained that they were hopeful that building extensive MTB networks would help create vibrant communities where people would want to live. Their goals included retaining people who grew up in these communities (e.g. creating places where young adults would want to return after college) and attracting new people to relocate to these areas. One interviewee stated:

> … the ultimate goal [is] of course, mental, physical well-being for outdoor recreation and then there's the economic impact. But really the ultimate goal is you want to attract people to this Northeast Kingdom region…. Two censuses in a row, our population has been in decline. And the entire state of Vermont is in decline. And the population over the age of 60 is increasing [as] well. The population under the age of something – I don't know what off the top of my head – is drastically decreasing. And so in order for these communities to continue to be viable, they need to attract.

Another interviewee echoed the need to attract new residents when they explained how their existing year-round population of residents was not big enough to help support a vibrant community in their part of Maine. They stated,

> We rely on the seasonal visitor and seasonal homeowner to help pay 90% of our tax bill. I couldn't live here otherwise. Quality of life wouldn't be what it is if it wasn't for recreation and tourism and our visitors. And the school districts are suffering in that area because the kids are just not there.

A third interviewee described the loss of young people from their community with how many individuals go elsewhere for college and do not come back. This interviewee expressed hope that the growth of MTB, and the businesses that are started to support that growth, would help convince young people to return after graduation and settle in these communities. This theme was not universal across interviews. Rather, it was an idea typically expressed by managers or planners.

Benefits of New Residents and Visitors

Our data suggest that the growth of MTB is indeed helping to foster more vibrant, growing communities in the Northern Forest. We heard from interviewees that new residents participate in the local economy by visiting stores and restaurants and become

engaged in the local community through social gatherings (e.g. group rides, race events, festivals) and volunteering in the community (e.g. trail-work days, fundraisers). One interviewee stated:

> And the greatest thing is, I see more 20- and 30-year-olds than I've ever seen on mountain bikes. And families, which is tremendous…And I think it's great because keeping the economy vibrant is also our key to keeping us moving in the community.

Another interviewee described the volunteerism when they said, "Everyone works on the trails… everyone helps over at the trail system, to come in to help us repair the trail or build a bridge or whatever."

We consistently heard from interviewees that they believed that MTB was supporting local businesses by attracting new residents and visitors to the trails. One interviewee told us, "They're obviously coming in and doing more than just recreating on the trails, they're going into local businesses. They're buying gas, they're going out to dinner, they're staying in lodging." Interviewees described how several breweries have been established because of the high demand from the MTB community. We heard from interviewees in New Hampshire that comradery around friends, riding, and post-ride drinks are commonplace. Steam Mill Brewing in Bethel, Maine, has seen their business grow over recent years. Several interviewees linked this growth to MTB specifically, describing how Steam Mill Brewing employees even bike together after work. The business recently opened a new location. We heard from additional interviewees that other once-struggling businesses have bounced back due to this influx of people visiting these locations. One interviewee stated, "I think when I first moved to town, there were two general stores in Craftsbury, and I think they were both scraping by. They're doing a little bit better now."

Finally, we heard from some interviewees that the positive economic impact on businesses was beginning to translate into more jobs in the region. For example, Steam Mill Brewing has hired more employees to keep pace with the increase in business. Another interviewee described how they contracted with a local conservation organization to help with trail maintenance, "So we hired that group to help us with trail work. And for 2 years now we've been hiring their women and gender expansive group. So that's a really special group that we work with too." In short, from the perspective of some interviewees, MTB was indirectly leading to job creation.

Growing Pains

One of the most salient themes that we heard expressed by interviewees was that new residents (the perceived lifestyle seekers) create tensions for already established rural residents. We consistently heard from interviewees that the influx of lifestyle seekers has exacerbated the already untenable housing crisis in New York, Vermont, Maine, and New Hampshire. Interviewees in Bethel, Maine, described how challenging it is to find permanent housing. Larger homes are advertised for short-term rental on AirBnB or other vacation rental websites, and are not for sale, which makes it difficult for local people to buy houses. This trend is consistent across the region. An interviewee told us the following about their community, "And they're sort of struggling with the people that are there and can't find places to buy or rent. People do want

to move, but it's just a very difficult time right now." When asked about the influx of newcomers to Craftsbury, one interviewee said:

> Housing is a big issue. People really get nervous about, you know, AirBnB, second homes, short-term rentals, pricing folks out and that is definitely true in Craftsbury. There is a dearth of affordable housing, and it sucks…Now there's not much inventory, [houses] get snapped up quickly…folks who are moving in as full time residents, but they're 'not from here'. And that's something that I think, you know, Vermonters, just anyone who has a deep connection through generations to a place, I can understand why they might feel a certain way about interlopers. It puts you in a really weird and kind of uncomfortable position because you celebrate these things, you tell people how great the quality of life is, they want to move here, they can't afford to do it. There aren't houses available to buy. So, they build, or they don't get to come to this community at all. And then low-income people are priced out…And then, by promoting recreational outdoor tourism and those opportunities, you're also adding to some of the fragmentation and permanent destruction.

In addition to housing pressures, we heard from interviewees that use and demand for trails increases the pressure on existing infrastructure. Issues related to parking were prominent, especially when large race events were held. Interviewees explained that this can also lead to safety concerns when more people must park along the shoulders of roadways, decreasing visibility. Given the reality that many of these communities are former mill towns, interviewees told us that it is not uncommon for mountain bikers to ride to the trailhead on curved roads and hillslopes with posted speed limits of 55 miles per hour, especially on common routes for logging trucks. One interviewee told us that these dynamics can, "wear on community members who are just trying to drive through town and there's no parking or there's a lot of traffic. And that can be a cause for frustration for local folks." The same interviewee stressed that, for communities thinking about expanding recreation opportunities as a means of economic development, planners and decision makers need "to have all of that holistic surrounding infrastructure and supporting infrastructure in place before you welcome and invite all these folks to your community."

Finally, interviewees articulated the difficult balance between encouraging people to move to these rural communities and suffering the negative consequences. As described above, Carrabassett Valley, Maine, is dependent on seasonal tourism. Carrabassett Valley schools saw record-high school enrollment in 2021, perhaps as people retreated to their second homes to be away from crowds in urban and suburban environments during the pandemic. However, those families have since moved out of the area, and school enrollment has dropped again. Another interviewee described the tensions this way, "And there are a lot of local people who have settled in a town, not necessarily because of its recreational infrastructure, and bringing in tons of tourists is maybe not what they signed up for." They then described how some in their community do not appreciate the changes that they attribute to lifestyle seekers. They stated, "Community and town changes and land use changes and all that sort of stuff and people who had been here forever using a land in a certain way all of a sudden find that the land they used to hunt on has a posted sign on it or something and that, it pisses people off." Yet another interviewee stated, "You know, we've taken their little sleepy mountain summertime, and put people into it…. And we don't think it's a bad thing. You know, the people who own restaurants and the people that work at restaurants in town and the people that own the lodging or work at the lodging, you know, we're providing year-round employment for these people to maintain their

residency here. So, it's a little bit of a give and take, I think it could go both ways." In short, although interviewees perceive the influx of lifestyle seekers to have positive economic impacts, they recognized that there are also some social impacts that are viewed negatively by community members.

Discussion

Our results showed that notable conflicts existed in relation to the more commonly studied on-trail conflicts in popular MTB locations across the Northern Forest Region. The existing literature on recreation conflict, including the Expanded Conflict Model, did not fully incorporate the entirety of conflict being experienced because of the growth of MTB. Instead of acute conflict taking place in the recreation setting (on trails), we heard from relevant groups about a different type of conflict that is more connected to the "growing pains" experienced by a community integrating an influx of new people.

The themes we saw in our data bore resemblance to the theory of Boomtowns. Boomtowns are characterized in the literature by a surge in population, increased economic activity, and the rapid construction of infrastructure to accommodate the growing needs of a community (England and Albrecht 1984). They can also face challenges such as housing shortages, strained public services, environmental degradation, and social tensions resulting from rapid growth and demographic changes (Jacquet and Kay, 2014; Park and Stokowski 2009). Issues arising from lifestyle seeking may align with the broader conceptual framework of Boomtowns. Rapid construction of homes can lead to erosion, water quality concerns, land fragmentation, wildlife disruption, infrastructure stress, and altered scenic landscapes (Park et al. 2019). An influx of new people can have positive impacts as well. New people in a community bring more money, retail spending, social interactions, participation in community activities, and local pride. However, they may also result in conflict and feelings of antipathy (Park et al. 2019).

Although our findings did not fit neatly in the Expanded Conflict Model, they did echo previous research on lifestyle seeking. Tensions can arise when second home buyers and new permanent residents move into communities and their local contributions and community participation are questioned by existing locals (Gallent, Stirling, and Hamiduddin 2023). This trend in attitudes was already resonant in towns across Vermont before the COVID-19 pandemic. A 2018 study on perceptions about initiatives in growth, development, and natural resource protection in amenity communities indicated that in slower-growing communities, tensions are increased when social, cultural, and economic changes occur (Park et al. 2019). Rural areas in the Northeast are rich with their own unique heritage. Families in these areas span generations, and the influx of new and different people can cause tensions between existing and new residents. Attitudes toward growth and development in natural resource rich communities may be related to residential status (temporary or long-term residency) and longevity (Brennan and Cooper 2008; Gosnell and Abrams 2011). In 2020, this part of the country saw more households immigrating than emigrating. This is evident by the 56,159 permanent and temporary household change of address requests submitted across the New England states between 2019–2020 (Sullivan 2021). Carson (2023) showed that most lifestyle seekers viewed their work-from-home schedule as an opportunity to live

wherever they wanted, and they chose the Northern Forest. This inevitably shifts the character of these communities, which sometimes has resulted in ill-feelings.

Given our findings, we suggest the need to consider a framework of conflict that captures a broader range of conflicts and tensions that we observed in our work. For example, in Burke, Vermont, the stresses stemming from lack of jobs, increased housing costs, inadequate capacity for vehicle traffic, and biker safety on roadways fall outside of the established Expanded Conflict Model (Manning et al. 2022), yet all these changes were connected to recreation-related conflict in this community. Therefore, we propose a new Regional Recreation Conflict Model (see Figure 2) which accounts for *Preconditions of goal interference*, *Conflict*, and *Outcomes* that exist beyond the recreation site and extend to the level of the community and region.

Our proposed model incorporates new preconditions connected to the *Characteristics* of a given community. These *Characteristics* include existing infrastructure like roads and housing, basic needs like schools and jobs, and aspects of heritage, like shared values and history. We additionally suggest that some elements of the Expanded Conflict Model, namely *Lifestyle Tolerance*, *Expectations*, and *Safety*, (left side of the diagram) can also occur beyond the recreation site. For example, within preconditions of goal interference, *Safety* applies within the recreation context (e.g. between cyclists and horseback riders on the same trail), and outside the trail network itself (e.g. increased vehicle accidents due to more cars on rural roads). Similarly, *Lifestyle Tolerance* and *Expectations* can apply outside of the recreation site and into communities. As such, inadequacies that are connected to recreation but happening within communities (e.g. lifestyle seekers' expectations about a community) may lead to a sensitivity to conflict. To account for this, our proposed model adds *Community Tensions* to the list of possible types of conflicts to reflect the fact that recreation conflicts may spillover into communities, impacting people's lives outside of the time they spend recreating. Across our research interviews,
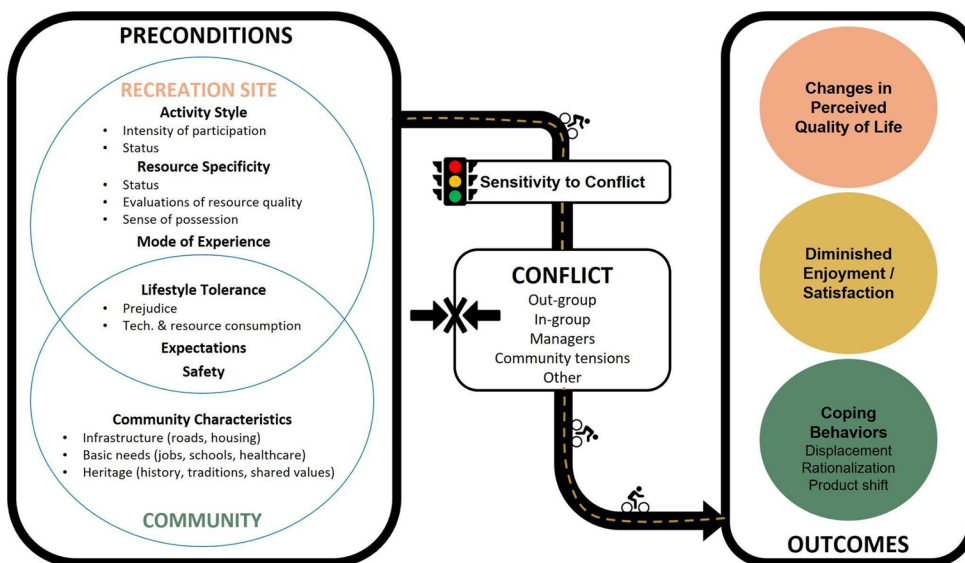

Figure 2. Regional recreation conflict model. Left side showing the preconditions to goal interference. Right side showing the outcomes of conflict as a result.

the rise of community tensions was apparent and theorized to be the largest contributing factor to conflict. For example, in Craftsbury, Vermont, we heard about longtime residents resenting the arrival of lifestyle seekers and the changes they ushered in. Finally, we have added changes in *Perceived Quality of Life* under *Outcomes* to describe the way that some individuals experience the presence of community and regional level recreation conflicts. For example, in Bethel, Maine, we heard stories of individuals moving across the border to New Hampshire to cope with the changes happening in their community.

We contend that our model is especially needed as changes in outdoor recreation tourism in many rural communities are disrupting previous social norms and challenging community identity. People are recreating in these communities in new ways, namely dispersed biking on a network of roads and trails that stretch across a landscape, rather than concentrated at managed ski resorts or parks. These changes mean that conflicts are not strictly limited to experiences on trails, but off trails too, within communities and between neighbors. Our model is broadly relevant, as trends in lifestyle seekers spanned international borders during the pandemic. While some of this trend can be attributed to counterurbanism (Mitchell 2004) or panic mobility (Cohen 2020), new technologies and trends in work styles may result in a broader pattern of relocation that will persist. Gallent (2020) noted negative impacts despite this influx of newcomers having positive economic impacts for tourism-dependent communities. These negative impacts were exacerbated during the pandemic, and issues of housing displacement and costs became evident.

Our findings are relevant beyond our study area and are applicable for scholars studying lifestyle seekers in other contexts. We encourage future researchers to corroborate and expand our model with additional empirical work, including quantitative studies. Our model also has practical implications for planning professionals, trail advocates, natural resource managers, and others engaged in rural economic development projects. We encourage these professionals to use our model to identify potential sensitivity to conflict sources within their communities, and subsequently direct resources to address preconditions before community tensions are created. This work should go hand in hand with the creation of new recreation infrastructure to avoid the conflict that may arise from increased recreation.

Limitations

Our work took a qualitative approach and rooted our research within the 10 Bike Borderlands communities, which is a small subset of communities with current or planned MTB developments. Thus, more studies are required in other communities with greater sample sizes to test the generalizability of our results. Nevertheless, qualitative studies like ours are appropriate for theory extension work (Eisenhardt 1989) and we encourage scholars to build on our work by replicating, testing, refining, and validating our findings on a broader scale.

Conclusion

We found that rural communities are recognizing the opportunities that MTB recreation and tourism can offer. As managers started to build trails, and users appeared

in unprecedented numbers, tensions arose among various interested parties. The increase in lifestyle seekers' presence during the pandemic came with its own set of growing pains. Conflict between the MTB community and long-term residents who are not involved in the sport resulted in a difficult transition for some communities, impacting the lives of people who live there. As trail managers continue to expand trail resources and access, the appeal for new users will continue to grow. Scholars should begin to quantify these impacts and land managers should turn to each other and their communities to help them navigate their responsibility in mitigating conflicts that extend beyond their MTB trails.

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