

Reducing Off-Trail Hiking: A Community-Based Social Marketing Proposal

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Abstract

Rates of participation in outdoor recreation are growing across the globe. Conservationists are tasked with preventing behavior that damages the natural spaces being used, without discouraging the visitation that has proven to inspire positive conservation behavior. Off-trail hiking in particular can be very disruptive to an ecosystem by altering animal behavior patterns and destroying delicate resources. This behavior can be attributed to the Stone Age Biases. To stem off-trail hiking, a Community-Based Social Marketing model will be employed to develop and disseminate an application and signage campaign.

Conservationists are facing a veritable catch-22 in their efforts to encourage positive conservation behavior and protect delicate ecosystems. While exploration of natural spaces can foster empathy toward wildlife, unchecked recreation, and uninformed recreationists can have a devastating impact on those same spaces.

Visitation to natural spaces and participation in outdoor recreation is on the rise. Globally, the number of participants in outdoor recreation increased by 2.5 to 5% between 1992 and 2006 while in the United States, it increased by 7.5% between 2000 and 2009 (Larson, Reed, Merenlender, & Crooks, 2016). It is estimated that 8 billion people visit protected areas globally every year. (Larson et al., 2016, p. 3).

On the face of it, increased participation in outdoor recreation is a good thing. Experiences in nature encourage positive conservation behavior and lay a foundation for future conservation action. Hiking and backpacking leads to increased future conservation contributions for years down the line (Zaradic, Pergams, & Kareiva 2009). Groups of students who participated in outdoor education programs (field trips, camping, hiking, etc.) ultimately developed a relationship with nature that was strong and empathetic. (Palmberg & Kuru, 2010, p. 32). In these ways, outdoor recreation is invaluable to conservation.

The growing popularity of outdoor recreation has also resulted in a more diverse demographic set of park visitors. Specialists and avid recreationists are being joined by an influx of casual park visitors who fall across the spectrum of foundational knowledge and frequency of participation (D'Antonio & Monz, 2016). This demographic shift has coincided with increasing negative conservation behaviors and recreation's overall impact on wildlife.

Larson et al. (2016) took a uniquely comprehensive look at the relationship between increasing outdoor recreation and biodiversity conservation by reviewing an archive of 274 articles and studies on the subject. Ninety-three percent of the articles they reviewed documented at least one effect of recreation on animals, 59% of which were classified as negative effects. Additionally, non-motorized recreation (hiking, kayaking, skiing, etc.) negatively affected wildlife 1.2 times more frequently than motorized activities (ATVing, Snowmobiling, boating, etc.).

Of all non-motorized recreation options, off-trail hiking poses a unique threat. The barriers of skill and specialization for hiking are far less than those of comparable non-motorized activities like skiing or kayaking (D'Antonio, Monz, Newman, Lawson, & Taff, 2012). As such, accessibility to natural spaces for hiking novices is greater. Guo, Smith, Leung, Seekamp, and Moore (2015) found a correlation between lack of hiking experience and negative conservation behavior, revealing novice hikers as a greater threat than avid hikers. D'Antonio and Monz (2016) found that growing visitation (a danger in and of itself) leads to increased instances of off-trail hiking by novice hikers and, therefore, a greater impact on wildlife.

Rogala et al. (2011) conducted a study of elk and wolf behavior in relation to off-trail hiking that demonstrates the severity of the impact of this behavior on wildlife. Using GPS and wildlife telemetry locations, Rogala et al. (2011) found that excessive hiking activity led to avoidance behavior in both species within < 50 m of the trail. Off-trail activity exacerbates this

effect as the radius of avoidance follows the hiker. This not only leads to greater wildlife disturbance but further fragments habitats and movement patterns. Off-trail activity can have cascading effects as well. Rogala et al. (2011) found that at a certain level of activity, wolves avoided the affected areas, while elk used them as a refuge from wolf predation. Lack of predation could lead to overgrazing, an increase in the instances of forest fires, and even desertification (Rogala et al., 2011).

The negative effects of off-trail hiking are multitude. The challenge for conservationists is to stem this specific behavior without discouraging outdoor recreation and losing an incredibly effective tool in conservation action.

Conservation Psychology Analysis

Before designing a conservation campaign or program, it is vital to understand the underpinnings of the negative behavior being addressed. Existing conservation psychology theory may hold the key.

The Stone Age Biases (SAB), as defined by Van Vugt, Griskevicius, and Schultz (2014), are five evolutionarily adaptive psychological biases that affect the human mind:

- Humans (1) value personal over collective outcomes (self-interest),
- (2) prefer immediate over delayed rewards (shortsightedness), (3) value relative over absolute status (status), (4) copy the behaviors of others (social imitation),
- and (5) ignore problems that we cannot see or feel (sensing) (p. 1).

Van Vugt et al. (2014) go on to explain that these biases were once fundamental to humanity's survival, as much a case of natural selection as a giraffe's neck or bird's wings. These biases developed during the Pleistocene Epoch, during which the human brain reached an evolutionary zenith, to solve crucial and recurring problems (Van Vugt et al., 2014, p. 3). However, the psychological tendencies that were vital to our ancestors' survival have not evolved to address modern problems and priorities.

Globalization has occurred at a breakneck pace in relation to human history, and even faster in relation to the glacial trickle of biological evolution. The human brain evolved to address immediate and selfish concerns and is not specialized to deal with the global and intangible crises that now face our planet. Unfortunately, conservation and natural resource management are among those concerns that, according to SAB, the human mind is not prepared to handle. Off-trail hiking (and negative conservation behaviors in general) can be traced to three SAB in particular: self-interest, shortsightedness, and sensory.

The conflict between self-interest and the common good is particularly evident in environmental problems (Van Vugt et al., 2014). In the case of off-trail hiking, there are many reasons to leave a marked trail: sightseeing, taking a shortcut, observing a specific animal or plant, removing oneself from human activity, etc. These actions are all examples of self-interest, acting with personal comfort or entertainment in mind. This bias requires the prior knowledge that off-trail behavior has negative consequences in wildlife and the decision (conscious or unconscious) to prioritize self-interest over the common good.

The destructive nature of self-interest is captured by Hardin's (1968) the Tragedy of the Commons – the phenomena where a finite resource is stripped by a growing population of self-interested individuals. The Tragedy of the Commons can be observed even in non-consumptive outdoor recreation. Consider a remote mountain with only a few hiking trails. The trails are strategically placed for minimal impact and clearly marked. However, there is a stunning view that is only accessible by bushwhacking. A hiker makes their way to the view, what harm could one person's off-trail activity cause? The dilemma occurs, however, because this hiker is not alone. Every one of the hundreds of other visitors has this same thought, following those same trails or making their own. Soon, the area is a shell of its former glory and is hard to tell what made it so special in the first place.

In many ways, the negative effects of anthropogenic activity are evident today. However, often conservation and environmental protection are future oriented. These disciplines require imagination to consider a future determined by today's actions. This is where conservation efforts can be disrupted by the shortsighted bias. According to SAB, natural selection has resulted in psychological prioritization of the immediate over an indeterminate future, whereby today's wants trump tomorrow's needs (Van Vugt et al., 2014, p. 14). The reward of off-trail hiking is immediate, whereas the consequences of off-trail hiking are distant and intangible.

An intangible reward pits conservation action against another SAB, sensory. Early humans did not have to directly face the slow-moving environmental problems of today and, therefore, did not adapt to respond to such crises. Rather, early humans evolved to handle tangible problems that they could see, hear, or touch. This has caused many people to under-prioritize conservation or environmental issues or dismiss them outright. In the case of off-trail hiking, the sensory nature of a wilderness experience eclipses the intangible threat to that ecosystem's future.

Applied Theory

To decrease off-trail hiking activity, I plan to target the foundational SAB behind this negative behavior. I will integrate the SAB's opportunities for intervention (Van Vugt et al., 2014) into a Community-Based Social Marketing (CBSM) model (McKenzie-Mohr, 2000).

McKenzie-Mohr's (2000) CBSM outlines a five-step behavior change method of: (1) selecting a behavior (2) uncovering and selecting a barrier to address, (3) designing a program to address that barrier, (4) piloting the program, and (5) evaluating that program. Using a combination of psychology and marketing, CBSM is particularly effective at creating change by utilizing the point of resistance (in this case, SAB).

Off-trail hiking behavior is an ideal focus for a CBSM campaign because it is end-state, non-divisible, and high impact. Off-trail hiking is a behavior that cannot be hedged or further broken down. Simply not hiking off-trail will result in the desired positive effect on the environment.

Barriers

A key component of a CBSM campaign is to identify the barriers to behavior change. In this case, the psychological underpinnings of off-trail hiking are also the main barriers to behavior change. The self-interest, shortsightedness, and sensory SAB are barriers to reducing off-trail hiking. These adaptive psychological biases are at the crux of the off-trail hiking behavior. Three additional barriers to stopping off-trail activity are lack of access to natural spaces (resulting in lack of experience), lack of incentive, and lack of preparedness.

Program Design

To reduce off-trail hiking, I have developed a program featuring a two-pronged approach comprised of: an application and an improved signage campaign. Trail Trek, the application, will provide a service that is part social networking, part group organizing, and part rideshare. Trail Trek will be a platform for hikers to come together and plan group excursions. It will also feature the Trail Trek Steward program, assigning individual members to be that specific group's steward. The Trail Trek Steward will be responsible for enforcing minimum impact hiking practices and ensuring group preparedness. The Trail Trek Steward for each excursion will be determined by a merit score that is earned by past group ratings and experience. Trail Trek will also allow group members to coordinate ride shares to the trailhead and gear shares for those who cannot afford their own. Trail Trek could also include educational materials and games to help improve the foundational knowledge of new hikers.

The Trail Trek program would be effective at overcoming the self-interest bias by providing a reciprocal social relationship for hikers off of which to base their behaviors. According to Van Vugt et al. (2014), creating strong, stable communities is the most effective way to combat the self-interest bias. The community building aspect of Trail Trek also uses the social imitation SAB to circumvent the shortsighted and sensory biases. The social imitation bias is when people engage in social mimicry of the majority. So, non-members may see large Trail Trek groups staying on-trail and decide to follow suit regardless of the immediate (shortsighted) or tangible (sensory) benefits.

The Trail Trek Steward will be a particularly effective asset in reducing off-trail hiking because of the proven effectiveness of personal communication. Hockett, Marion, and Leung (2017) conducted a study on the effectiveness of various methods of intervention on off-trail behavior. They compared: trailhead educational signs, concealing informal trailheads, placing no-hiking signs on those that couldn't be concealed, restoring select trails, and onsite trail stewards. Based on observational and survey data, Hockett et al. (2017) found the most effective method to be onsite trail stewards, reducing off-trail activity from 70.3% to 43.0% (p. 25).

Kidd et al. (2015) conducted a similar survey using GPS data to corroborate their findings. This study reduced the comparison to personal contact versus signage. Like Hockett al., Kidd et al. found that personal contact was far more effective than signage. This data further supports the use of these informal trail stewards as assigned by the Trail Trek app.

I will disseminate Trail Trek by adding a QR code to the campaign signage around the park. I will utilize social influencers to tap into the social imitation and status biases. I will ask popular outdoor bloggers and Instagram personalities to use and promote their use of the Trail Trek application. Getting influential individuals to use Trail Trek would help push social diffusion and build a groundswell of users.

The Trail Trek application is an effective implementation of a CBSM campaign. It utilizes the Self Perception Theory by providing a small initial investment (creating a Trail Trek account), thus making it easy for the individual to see themselves continuing this behavior into the future (McKenzie-Mohr, 2000). Furthermore, Trail Trek utilizes injunctive norms by highlighting the positive behavior (on-trail hiking) of Trail Trek Stewards and their peers.

The second part of the CBSM program to reduce off-trail hiking will be a signage campaign. The signage will use the phrase “Stay In Your Lane” to address both the ecological (moral) and amenity (self-interest) motivations by using images of a diverging path that lead to either a healthy forest or an impassable wasteland (Kidd et al., 2015). The phrase “Stay In Your Lane” also serves as a call to action to stay on trail.

Kidd et al. (2015) studied the effectiveness of trailhead signage against the control of a well-marked trail. The study found that trails with signage were not significantly different when compared to the standard blazed trail. The signs would be placed at transportation hubs, outdoor stores, and recreation site amenities. This would hopefully influence visitor behavior before they even step foot on the trail.

Conclusion

As outdoor recreation grows across the globe, so too does the instance of destructive recreation behaviors. Off-trail hiking is a particularly insidious behavior because of the lack of barriers to entry and the immediate and lasting impacts on wildlife. Stone Age Biases inform these behaviors in humans from an evolutionary standpoint. A Community-Based Social Marketing program targeted at these biases and other barriers would successfully reduce off-trail activity. The Trail Trek application would utilize informal trail stewards and a community organization, combined with an informational signage campaign, to reduce off-trail hiking.

Off-trail hiking is just one of many destructive recreation behaviors that have grown in severity with the influx of novice recreationists. Perhaps, by starting small and addressing this attainable goal, recreationists will see how easy it is to practice minimum impact recreation.

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