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## Institutional enforcement, signaling, and deliberation: Rock climbers attempting to maintain rules and norms through social sanctioning

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**Abstract:** Scholars have long recognized the importance of social sanctions for enforcing rules and norms. This paper draws attention to additional functions that social sanctioning serves in institutional maintenance – signaling and deliberation – and compares how these functions differ across cases of externally-imposed rules and community-derived norms. The examination is conducted through a comparative case analysis of self-governance in rock climbing communities. In one case, a climber’s infraction of land management regulations instituted to protect nesting eagles not only violates climbing institutions but may pose a threat to access to a popular climbing area. In a second case, a climber’s installation of climbing bolts in an area of historical climbing significance violates long-held community norms, without breaching formal rules. In both cases, the transgressors experience social sanctions online (i.e. on the internet) and face off-line consequences. Study findings suggest that social sanctions serve multiple functions in the maintenance of rock climbing institutions and that these functions vary depending on the type of the institution that is violated. The article closes with the implications of study findings for the broader understanding of community institutions and institutional maintenance.

**Keywords:** Enforcement, institutional maintenance, norms, rock climbers, rules, social sanctions

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## I. Introduction

A robust literature cross-cuts the social sciences documenting that communities can – and do – support collective action through institutions: rules and norms that reflect shared understandings of appropriate behavior. Creating rules and norms, however, is not sufficient to sustain community collective action in the long-term. Institutions are social constructs: whether they shape individual and group behavior reflects the degree to which rules and norms are recognized and adhered to by community members (Rothstein 2000; Ostrom 2005). This leaves institutions vulnerable to deterioration from declining application over time: “the withering away of what had been agreed upon earlier” (Ostrom 2014, 22). Collective action thus requires institutional maintenance in which actors strategically expend effort on the preservation of community rules and norms (Oliver 1980).

This paper examines the role of social sanctioning in the maintenance of community rules and norms. In contrast to material sanctions, such as fines or imprisonment, social sanctions operate through interpersonal pressures, such as expressions of approval or disapproval (Campbell 1982), and have been shown to be important elements of community governance across a range of contexts (e.g. Dowling and Pfeffer 1975; Knack 1992; Ostrom 2005). Scholars often focus on the regulatory function of social sanctioning: punishments (or rewards) imposed by community members to encourage compliance through emotive mechanisms, such as guilt or shame (Kinzig et al. 2013). Less attention is paid to other social sanctioning functions. For example, publicly issued social sanctions can inform the uninitiated of community rules and norms and demonstrate to other community members and external entities, alike, that a community does not tolerate noncompliance (Schoenmakers et al. 2014). Furthermore, social sanctioning may create opportunities for deliberation on the appropriateness of community rules and norms – an important aspect of sustainable institutional maintenance (Dietz et al. 2003).

This paper examines social sanctioning functions through a study of self-governance among rock climbers. Climber self-governance is an advantageous context in which to study social sanctioning for several reasons. First, rock climbing communities are historically governed by defined institutions buttressed by distinctive community jargon, culture, and clear in-group identities (Mellor 2001; Bogardus 2012; Scott and McMahan 2017), however, a growing swell of new climbers transitioning from increasingly popular climbing gyms to outdoor climbing challenge long-held institutions that define appropriate climber behavior (Scott and McMahan 2017). Furthermore, climbing institutions are often a mix of rules imposed by land management agencies and community norms established by climbing communities. Climber self-governance thus allows for comparison of social sanctioning in the case of both external rules and community norms. Finally, as seen in this paper, climbing communities often organize their own governing bodies in the form of nonprofit advocacy and stewardship organizations (Lu and Schuett 2014). Examining institutional maintenance under multi-layered oversight promises insight into the dynamics of resource co-management (Carter and Weible 2014).

The study pursues two research questions: What functions do social sanctions serve in the maintenance of community rules and norms? How do the apparent functions of social sanctioning differ when cases of rule and norm enforcement are compared? The study undertakes a comparative case study analysis. It first examines a case of institutional violation in which community members have sought to internalize an externally-established rule; this is contrasted with a case of institutional violation in which community norms stand independent of external regulation. In both cases, the institutional transgressors experience social sanctions online (i.e. on the internet), and face real-world consequences. The findings suggest that social sanctions serve multiple functions in the maintenance of rock climbing institutions and that these functions vary depending on the type of the institution that is violated. The paper closes with the implications of study findings for the broader understanding of community institutions and institutional maintenance.

## 2. Rules, norms, and the role of social sanctioning in institutional maintenance

Institutions, as the term is used here, are the shared prescriptions that humans use to organize repetitive and structured interactions (Ostrom 2005, 3). This study concerns two types of institutions: externally-established rules and social norms. Rules are prescriptions for expected behavior that are attached to material consequences for noncompliance, while norms rely on emotive consequences such as guilt, embarrassment, or shame to encourage compliance (Ostrom 2000; Kinzig et al. 2013). The distinction is important. Rules tie tangible consequences to non-compliant actions – consequences that have concrete ramifications. For example, if rules originate from a legal authority, penalties for noncompliance can impact an individual's material well-being, in the case of fines, or freedom, in the case of imprisonment.

Social norms, on the other hand, are dependent on an individual's internalization of social pressures to shape behavior. Following Kinzig et al. (2013) and Ellickson (2001, 3), social norms are “[institutions] governing an individual's behavior that third parties other than state agents diffusely enforce by means of social sanction.” This does not mean that norms are inherently less effective than rules. Reliance on social pressures, however, increases the vulnerability of norms to changing conditions. This vulnerability is perhaps most evident in the case of community entrants that are ignorant or indifferent to a community's history or culture (Ostrom 2000). Absent mechanisms for instilling community expectations in new community members, the effectiveness of governing institutions likely deteriorates. As stated by Ostrom (2005, 161):

Unless there were a forum in which the importance of keeping the norm could be discussed with newcomers...communities that regulate resources using only norms may find themselves exposed to substantial changes in regularized behavior when exposed to considerable immigration.

Of course, institutional adaptability is by no means always a liability. The relatively malleable nature of social norms can enable more robust governing arrangements when contextual changes, such as rapid transformations in resource conditions, call for a responsiveness that more rigid rules may not allow. Furthermore, the flexibility of social norms can be leveraged to experiment with governing alternatives in the search for more effective institutional arrangements (Ostrom 2005; Kinzig et al. 2013). Finally, while community entrants that are uninitiated in the community's traditions might constitute a governance threat in the eyes of long-time community members, where new entrants come to constitute a majority of community members changing social norms might be considered a democratic exercise in institutional realignment.

While rules and norms are conceptually distinct institutional mechanisms, governing arrangements are typically an interdependent combination of both institution types. For example, one need not look far to observe written rules that are rarely followed in practice – what scholars call rules-in-form (Ostrom 1998); externally-imposed rules, in particular, are likely to be ignored if they conflict with community norms. A rule may be successfully imposed if community behavior is monitored closely enough to sanction every act of noncompliance. Given the high costs that monitoring and sanctioning activities engender, however, a more likely route to rule-in-form compliance is community internalization – where the threat of material sanctions is buttressed by normative pressures.

This study examines one such case – where community members have sought to internalize an externally-established rule-in-form – and contrasts it with a case of community norms that stand independent of external regulation. Social sanctions are expected to play important functions in both circumstances. The remainder of this section discusses several potential functions. The discussion begins with the more evident – enforcing community institutions – and then turns to two additional functions: signaling and deliberation.

### **2.1. Social sanctions and institutional enforcement**

Discussions of institutional enforcement often focus on the coercive authority of government-initiated material sanctions, such as the imposition of fines (Kinzig et al. 2013). The primary concern of this paper, in contrast, is the role of *social* sanctioning in operational situations: contexts where governing institutions have been established and decisions center on whether to comply with established rules and norms, how to monitor for rule and norm compliance, and whether and how to punish for rule or norm infractions contexts (Kiser and Ostrom 1982; Ostrom 1998). Social sanctions – positive or negative interpersonal pressures that community members apply to encourage conformance with governing institutions – are powerful mechanisms for supporting institutional maintenance in such settings, as enforcement can encompass a range of actions and associated emotions, including “face-to-face approval and disapproval, ostracism, conformity pressure, shame and pride” (Campbell 1982, 434).

By definition, social sanctions are the primary enforcement mechanism for social norms (Ellickson 2001; Kinzig et al. 2013). Given adequate community coherence, individual feelings of allegiance to the group, and consistent sanctioning for noncompliances, most community members are likely to conform to social norms out of a concern for their reputations and standing in the community (Fehr 2004; Ostrom 2014). In the case of externally-imposed rules, social sanctions can serve to buttress or supplement the threat of material sanctions. For social sanctions to serve a rule-enforcement role, the rule must be legitimized in the eyes of community members, establishing that the rule falls under the purview of community values and concerns (Dowling and Pfeffer 1975). Assuming a community adopts the rule as a norm, however, the result is likely a robust governing institution, supported by both material incentives and normative pressures (Kinzig et al. 2013).

For the purposes of this study, institutional enforcement is a basic function that social sanctions are expected to fulfill in institutional maintenance in the case of both externally-established rules and community social norms. Differences in other social sanction functions across external rules and community norms are anticipated, however, as discussed below.

## 2.2. Social sanctions and signaling

The second function social sanctions likely fulfill in institutional maintenance efforts is signaling: strategically conveying information to individuals or entities. Institutional scholars have long recognized the importance of signaling in collective action institutions (e.g. Posner 2009). Sanctions themselves can serve as signals by making community norms, and the penalty for violating them, visible: “When sanctioning institutions are publicly visible, they act as a costly signal... this deterrent effect of sanctioning institutions may be the major incentive to make the institutions publicly visible” (Schoenmakers et al. 2014, 37).<sup>1</sup>

When administered in a public manner, social sanctions offer one method of making institutions visible. At a basic level, social sanctions convey information about the transgressor, signaling that the individual is willing to violate community norms (Posner 2009; Ostrom 2014). In the process, however, social sanctioning also conveys information regarding community rules or norms and a demonstration of the consequences facing transgressors. The group benefits of social sanction thus reach beyond changing the behavior of the institutional offender to leverage the incident as an opportunity to educate community members. In other words, social sanctioning fills both deterrent and educational roles. These benefits are greater in communities facing significant immigration from new community entrants uninitiated in the community’s history and culture (Ostrom 2005).

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<sup>1</sup> Of course, signaling does not invariably lead to positive outcomes. For example, Kahan (2002) argues that campaigns in which institutional transgressors are publicly named may decrease the rate at which people follow the rules if, as a result, they discover that noncompliance is more prevalent than they previously assumed.

In certain cases, signaling through social sanctions may be further directed at entities external to the community in question to establish and demonstrate that the community is a collective “good actor.” For example, visible sanctions are one manner in which industry self-regulation regimes seek to avert or forestall government regulations, by signaling the integrity of voluntary standards (Lenox and Nash 2003). Similarly – and pertinent to this study – where a community wishes to demonstrate their adherence to an externally-imposed institution, visible social sanctioning provides a mechanism to show an external authority that the community as-a-whole doesn’t tolerate rule violations. Social sanctioning thus serves as a cooperative signal, indicating that the community has internalized the rule and can be trusted to uphold it (Ferrin et al. 2007).

There is no *a priori* reason to suspect that communities confronting a social norm violation are any more or less likely to use social sanctioning to signal existing or new community members when compared with communities dealing with the violation of an externally-mandated rule: both are likely to do so. Differences can be anticipated, however, when it comes to signaling outside entities, as communities attempting to internalize an external rule have an obvious interest in sending the authority a cooperative signal. It’s therefore expected that target audiences constitute a difference in social sanctioning for violations of rules and social norms: signaling in the case of external rule transgressions likely targets both the community and an external authority, whereas signaling in the case of norm transgressions is likely limited to community members.

### **2.3. Social sanctions and deliberation**

The final social sanction function examined in this paper is creating opportunities for deliberation regarding the proper scope, content, and focus of community institutions. Successful institutional maintenance depends on the ability to buttress or adapt rules and norms in response to changes in external or community conditions (Ostrom 2005). Deliberation facilitates this process by, in the words of Dietz et al. (2003, 108), “[providing] improved information and the trust that is essential for information to be used effectively, builds social capital, and can allow for change and deal with inevitable conflicts well enough to produce consensus on governance rules.”

As social constructs, institutions are often obscure, as people tend to see them simply as “the way things work” rather than expectations that can be altered – particularly when it comes to historically and culturally embedded social norms (Ostrom 2014). The social sanctioning process of making community institutions visible presents a window for deliberation to take place. Where changes in the physical environment, technology, or community composition have occurred, community members observing the social consequences of institutional violations may question the appropriateness of the institution or a community’s sanction for violating it. Where the institution in question is an externally-imposed rule, and the community has less say over it, such deliberation is unlikely – although the

*Table 1: Expected functions of social sanctions in the case of external rules versus community norms.*

	<i>Likely in the case of</i>	
	Externally-established rules	Community norms
Enforcement	Yes	Yes
Signaling		
Community	Yes	Yes
External	Yes	No
Deliberation	No	Yes

community may engage in discussion over whether the rule should fall under the purview of a community's normative pressures. Community norms, on the other hand, are more likely to generate community deliberation.

#### **2.4. Expected social sanction functions in response to rule and norm violations**

The preceding discussion outlines several propositions regarding the likely functions that social sanctioning fulfills when externally-imposed rules and community norms are found to be violated.<sup>2</sup> These propositions are outlined in Table 1. This study examines these expectations in the context of self-governance in rock climbing communities. An introduction to this context follows.

### **3. The empirical context: self-governance in climber communities**

Rock climbing is what recreational sociology scholars call a “lifestyle” sport, characterized by individualism (absence of team competition), self-governance (lack of an official governing entity), and a distinctive subculture (Bogardus 2012; Rinehart and Sydnor 2012). Climbers' subculture extends beyond idiosyncratic jargon (almost unintelligible to outsiders; Kozak 1988); climbing activity is historically governed by community institutions determined out of deliberation, and sometimes conflict, regarding appropriate climber behavior. Referred to by climbers as “ethics,” climbing institutions address a range of activities, from the way a climb is ascended to the type of equipment use that is acceptable in an area (Perkins 2005; Bogardus 2012; Scott and McMahan 2017).

Perhaps the most contentious climbing governance issue is the placement of bolts – hardware that is permanently installed on climbing routes to catch a climber in the event of a fall. Bolts can be juxtaposed against the use of removable protection serving the same purpose. As the name implies, removable protection

<sup>2</sup> Propositions, as the term is used here, outline general and descriptive theoretical expectations, as opposed to hypotheses, which identify narrowly specified relationships between variables (Shoemaker et al. 2003, 38).

is placed in cracks as a climber ascends a route, and then removed upon completion of the climb (or section of the climb). Conflicts over bolting emerged in the 1980s and 1990s, as climbers struggled over cultural customs regarding the risks inherent to the act of climbing (and to a lesser degree, climbers' impact on the environment), and were contentious enough that they have since been given the distinctive label "the bolt wars" (Perkins 2005; Bogardus 2012; Scott and McMahan 2017). Bolts were placed, removed by others (a practice known as "chopping"), sometimes only to be replaced. Conflict varied across geographical areas and communities, however most U.S. climbing regions experienced a certain level of discord (Mellor 2001). Although the more heated bolting debates have since subsided, where bolts can be placed remains a salient issue in most climbing communities, and norms for appropriate bolting vary across communities.

Climbing governance occurs at the interface of land management regulations and community practices – often facilitated by the efforts of community-organized nonprofit advocacy and stewardship organizations (Carter and Weible 2014; Lu and Schuett 2014). Approximately 60% of U.S. climbing areas are on public land that falls under federal, state, or local government jurisdictions (Access Fund 2016). Climbers' interactions with land management regulations vary. This study concerns regulations that specify seasonal climbing area closures for the purposes of protecting nesting raptors – birds of prey such as eagles and falcons. Climbing advocacy organizations have launched coordinated campaigns to educate climbers about such closures and encourage climber compliance with them (e.g. Access Fund 2017).

Nesting closure campaigns are one example of concerted efforts within the broader climbing community to address a growing challenge to self-governance: the influx of new climbers transitioning from increasingly-popular indoor climbing gyms to outside climbing areas. Gym climbers are often well-versed in the technical aspects of climbing, but lack the institutional education and acculturation that prior generations experienced learning to climb outside (Starker 2013; Gagnon et al. 2016). The rapidly changing composition of climbing communities underscores the theoretical relevance of institutional maintenance in such communities, as well as the practical importance of understanding social sanction functions in self-governance efforts.

#### 4. Research methods

This study follows a comparative case study design (Gerring 2007). The study is non-observational insider qualitative research, as the author – a climber – can be considered a member of the social group under examination (Lofland 1971). Insider qualitative research has several advantages: an understanding of the culture being studied, increased rapport, and greater interpretive validity of qualitative data (de Volo and Schatz 2004). Some of the notable concerns of insider qualitative research, such as biased findings resulting from interpersonal relationships, are mitigated by the non-participation approach.

#### 4.1. Study data

Study data come from two sources. The first is seven key informant interviews. Central case actors were identified through reports posted on the publicly-accessible online discussion forums of a popular rock climbing website Mountain Project ([www.mountainproject.com](http://www.mountainproject.com); see more below regarding the site). Individuals were contacted through the website's message feature (akin to an email). A modified snowball sample approach (Atkinson and Flint 2001) was then used, in which these interviewees were asked to identify other key participants in the events in question. Interviews were recorded and transcribed. Due to the reputational impacts of the events studied, the author agreed to preclude case details that would readily identify the events and individuals in question, such as names, locations, dates, and organizational entities involved.

For the one of the cases (Case 2), interview data supplement an analysis of a Mountain Project discussion thread data. Although a similar thread had existed for the events of Case 1, it was subsequently been deleted, precluding the data from being incorporated directly in the analysis. The deletion of the thread is discussed further in the case study section. Mountain Project is a publicly available user-generated online climbing guide featuring climbing area descriptions, climbing route maps and photographs, and user comments regarding route characteristics. Notably, because of their centrality to outdoor activity communities, there is precedent for drawing on online platforms, such as Mountain Project, for the collection of data in academic research (e.g. Plank 2016).

#### 4.2. Data analysis

Transcribed interviews and discussion forum data were subject to two iterative qualitative analysis methods. First, key actions and events from each of the cases were identified and arranged temporally to construct a process trace of each of the institutional transgression and enforcement incidents (see Gerring 2007, 172–185). Second, to examine study propositions, a modified constant comparison coding method was used – allowing for inductive coding within broad deductive categories (Leech and Onwuegbuzie 2007). Data were first deductively coded according to four broad categories representing the previously outlined social sanction functions: (i) institutional enforcement, (ii) within-community signaling regarding institutional content and the consequences of institutional violations, (iii) external signaling of community credibility, and (iv) deliberation over rules and norms. These coded fragments were then reviewed inductively for themes within the general topics that emerged across data sources (Creswell 1994; Leech and Onwuegbuzie 2007; See the Appendix for further data collection and analysis details).

Measures were taken to counter the threats of synthesizing qualitative data, such as emphasizing select findings over contradictory evidence as a result of confirmation bias. First, where possible data from different sources were compared, to triangulate evidence and ensure consistent information

across sources. Second, coding frames were constructed to actively search for and integrate evidence that contradicted study expectations. Finally, a unique identifier was assigned to each interview participant or Mountain Project discussion forum participant and are reported in the findings to maintain analytical transparency.

## 5. Institutional maintenance case studies

This section presents the analysis in three parts. A narrative describing the violation of externally-imposed rules comes first, followed by a narrative regarding the violation of community norms. As discussed above, to ensure study participant confidentiality, identifying details are omitted from the case studies. Findings are drawn in a comparative case analysis at the end of the section.

### 5.1. Case 1: institutional maintenance of raptor nesting rules

The climbing area in which the first case took place is a canyon located on the outskirts of a major metropolitan area in the Western U.S. A road runs through the canyon, providing access to the canyon's granite cliffs ("crag") that attract climbers from an adjacent municipality. Typical area climbers are municipal residents, including students of a university, and residents of the wider metropolitan area. The canyon is a mix of public and private ownership, with much of the public land managed by the U.S. Forest Service.

As in many U.S. climbing areas, certain crags in the canyon are closed seasonally to protect nesting raptors (i.e. eagles, falcons). Unlike in other areas, a collaborative relationship exists between the Forest Service and a local climbing advocacy organization. Known nesting sites are closed to climbing at the beginning of the nesting season. With the help of trained climber-volunteers, some of which have wildlife biology backgrounds, closed crags are monitored for nesting activity via site-visits and nest cameras. Once raptors have chosen their nesting sites for the season, areas that pose no threat to nesting activity are reopened. The co-management arrangement thus allows climbers greater access to areas that otherwise would be closed for the entire season, regardless of actual nesting activity.

#### 5.1.1. Rule violation and subsequent social sanctioning

It is during the course of site monitoring that a climber-volunteer (referred to hereafter as the Observer; see Table 2) noticed two individuals violating a Forest Service closure by climbing a route that runs through an eagle nesting site. The Observer shouted up to the leader of the team (the Climber) that he was climbing a closed route and should descend. The Climber replied that he would rappel from an anchor situated higher on the route. The Observer left shortly after the exchange, but not before taking photographs documenting the closure violation, including a photograph of a nearby vehicle, which he suspected to belong to the Climber.

Table 2: Case 1 actors and roles.

Actor	Description	Role in case
Climber	Climber of two years and university student	Violated rules by climbing a route closed due to potential raptor nesting
Observer	Volunteer working with land management agency and climbing community to monitor raptor nest activity	Observed the Climber violating the closure and reported the violation to the Institutional Enforcer
Institutional Enforcer	Long-time member of local community with history of contributing to management efforts	Contacted the Climber regarding the violation, initiated the Mountain Project thread regarding the violation, facilitated communication between the climber and land management authorities
Mountain Project users	Climbing community members	Engaged in discussion thread regarding rule violation; some, but not all, participated in social sanctioning
Forest Service representatives	Local U.S. Forest Service officials	Engaged in co-management with the climbing community; decided against enforcing legal sanctions in response to the Climber's actions

The Observer reported the rule violation to a long-time climber and leader in the local climbing community (the Institutional Enforcer), and sent him the photographs the following day. The Institutional Enforcer, in turn, took two actions. First, after receiving the photographs and identifying the Climber, the Institutional Enforcer contacted him through a Mountain Project message, stating that the Climber's identity was known and explaining the penalties for violating a raptor closure. These penalties included up to a \$10,000 fine and the potential for six months in jail.<sup>3</sup> The Enforcer further stated he was willing to turn the Climber into the authorities, and that the Climber should contact the Enforcer immediately.

Second, after a day passed with no reply from the Climber, the Institutional Enforcer posted about the rule violation in a Mountain Project forum thread visible to all website visitors. The post described the violation, stated that the violator had been identified and was caught on nest cameras, and claimed that Forest Service personnel had been contacted. The post included hyperlinks to sources describing the raptor nesting regulations and the penalties for violating them. The post did not reveal the identity of the Climber.

Commenting on why he created the Mountain Project thread, the Institutional Enforcer stated (Interview ID1A):

...the entire [climbing] community has really worked on this relationship with the Forest Service, which is pretty good. But we don't want that to change...

<sup>3</sup> The Institutional Enforcer stated that he identified the Climber through "detective work" – "a multi-stage process of figuring out who the person was" (Interview ID1A). Because this process is tangential to the topics of interest, details are not reported here.

And I kind of used the pressure I created online for...two purposes. To demonstrate to him what was going to happen to him; number two: to demonstrate the Forest Service the average climber is not going to do this or put up with it...I wanted the Forest Service to be able to read this and understand – yeah, climbers are going to do this – there’s a bad apple in every barrel...and if left to their own devices the community will take care of this.

The response from Mountain Project users was swift. The first reactions to the post were concerns that the Climber’s actions would impact climbing access in the canyon. Prior to the co-management arrangement in which volunteer climbers monitored nest activity, closures encompassed wide geographic areas and lasted longer; climbers feared that co-management efforts would be undermined by the rule violation, putting at risk the gains to crag access that co-management had secured.

Subsequent comments targeted the Climber directly. Most were critical – challenging the competence of the Climber and his experience – in the words of the Climber: “definitely very negative comments – and more insulting than anything” (Interview ID1B). After a user was able to identify the Climber, the comments became personal and subsequent posts clearly exhibited elements of social shaming. For example, in an act referred to as “doxing,” the Climber’s social media accounts were accessed and photographs that the Climber had taken during the rule-violating climb were posted on the thread. Some Mountain Project users went a step further, superimposing images of eagles attacking the Climber on the photographs. With his identity known, several users attempted to contact the Climber via other means, such as through Facebook, telling the Climber that he had “really screwed up” (Interview ID1B).

### **5.1.2. Rule violation resolution**

It took three days for the Climber to become aware of the activity taking place on Mountain Project. Upon checking his email, however, the Climber saw the Institutional Enforcer’s message and quickly found messages sent by Mountain Project users, leading him to the Mountain Project discussion thread. According to the Climber, his first concerns were the legal ramifications of his actions, followed by the social consequences exhibited on the Mountain Project thread. He contacted the Institutional Enforcer and apologized. In the Climber’s words (Interview ID1B):

I called [the Institutional Enforcer] and I called some other people that wrote and I said ‘you know honestly I was in the wrong.’ I wanted to explain things from my side of the story and take credit for what happened and not be stripped of blame or anything like that.

Under the Institutional Enforcer’s council, the Climber posted a short note on the thread recognizing his guilt in the situation, apologizing to the community, and stating that he would contact the Forest Service to take responsibility for the situation. The Enforcer facilitated communications between the Climber and the

Forest Service, providing the Climber with Forest Service representatives' contact information and alerting representatives to the Climber's impending contact. The Climber contacted the representatives, accepted responsibility for the situation, and offered to perform community service to amend the violation. Taking into account the response of the climbing community to the Climber's actions, Forest Service representatives opted to not enforce legal sanctions (Interview ID1D).

Resolution extended beyond interactions between the Climber and the Forest Service. The Climber reports that once he posted on the Mountain Project forum, Mountain Project users were quick to change the tone and content of their comments, expressing appreciation for the Climber taking responsibility. According to the Enforcer: "I think the community kind of – I think they gave him a free pass once he confessed, which is really what I was after" (Interview ID1A). Activity on the thread diminished, and a couple of weeks later the Institutional Enforcer contacted Mountain Project representatives on behalf of the Climber with a petition to delete the thread after it "died a natural death" (Interview ID1A). Mountain Project personnel agreed, and the thread was deleted.

Immediately following the case, community leaders decided that closure signage should be robust enough that no climbers could argue they had not noticed the existing parking area announcement – as claimed by the Climber: "I just assumed it was some normal parking sign or something along those lines" (Interview ID1B). The Institutional Enforcer obtained eagle head-shaped tags which read "active eagle nest" and "seasonal closure," alongside Forest Service and Access Fund (a national climbing advocacy nonprofit) logos. The tags were hung from the climb's first two bolts, preventing future climbers from climbing the route without seeing them. According to both the Enforcer and Observer, no known attempts have been made to violate the crag's nesting closure since the installation.

## **5.2. Case 2: institutional maintenance of bolting norms**

The climbing area in which the second case took place is a line of cliffs on the outskirts of another metropolitan area. The Cliffs are a short walk from a road, providing the quickest available access to outdoor climbing for climbers of the adjacent municipality. Area climbers are municipal residents, and, as in Case 1, include students of a (different) university. Land in the area falls under the local County's purview, which has invested increasing attention to area management in the last 15 years, at times in conjunction with a local climbing advocacy nonprofit (referred to here by the pseudonym "Climbers Association").

While the quality of the Cliffs' climbing is marginal by many climbers' standards, its ready access and the ability to top-rope (a form of climbing involving minimal risk) makes the area an attractive destination, particularly among less experienced climbers. Climbing has occurred in the area for decades, dating back to at least the early 1960s. Boulders scattered around the base of the Cliffs hold historical significance as the site of some of the earliest U.S. bouldering (a climbing subset characterized by short, but difficult, routes). The Cliffs have witnessed

past disagreements over whether bolted anchors should be allowed to facilitate tope rope climbing, and anchors had been sporadically installed, only to be pulled or chopped by other climbers.

### **5.2.1. Norm violation and subsequent social sanctioning**

It is against this backdrop that Climbers Association representatives approached the County's Land Manager with a request to install bolted anchors at the top of Cliffs routes. The Association, a small nonprofit managed by an all-volunteer Board of Directors, partnered with the County on a range of stewardship projects – from graffiti removal to trail construction – developing credibility and trust with County officials over time. Association representatives highlighted the environmental toll that climbers' anchor-building activities had taken at the top of the Cliffs, which would be alleviated by the addition of bolt anchors. After some discussion, the Land Manager granted Association representatives permission to install whatever hardware they deemed necessary.

With authorization to bolt at-will, one of the Association members (the Developer) floated the idea of going beyond installing anchors at the top of climbs and proposed turning the climbs into "sport climbs" by placing bolts at regular intervals up the routes.<sup>4</sup> The move, he reasoned, would open the climbs up to a wider range of climbers as safe lead climbs, rather than relegate climbers to either top roping the climbs or climbing them without the safety of a rope, as was currently the case. The proposition was met with hesitation and concerns that some community members would not appreciate the introduction of bolts to climbs that historically had none – an act referred to as "retro-bolting." Eventually, however, it was agreed that the Developer would equip one or two easy routes as sport climbs and then wait to see the community's response.

The Developer installed two routes and immediately began receiving positive feedback from other climbers. The act had its intended effect, as many of the less-experienced climbers that frequented the Cliffs found the sport climbs opened up new, safe, climbing experiences. Spurred on by the positive reactions, the Developer equipped additional routes until the Cliffs exhibited seven retro-bolted sport climbs (totaling roughly 50 new bolts). The response to the Developer's activity remained positive, even after the local newspaper ran a photo series of the Developer installing the routes. A Mountain Project forum thread was started focusing on the new routes, and the Developer posted to the thread, identifying himself as the bolter and noting that the Climbers Association had obtained County permission for route development.

The thread's tone took a turn after three days, when some Mountain Project users began criticizing the Developer's actions and arguments over the appropriateness of the new routes sprouted. Most of the users fell clearly into one of two

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<sup>4</sup> Sport climbs are climbs in which permanent bolts constitute the protection that leaders rely on in the event of a fall. They can be considered in contrast to "traditional" climbs, which are protected by removable protection, rather than bolts.

Table 3: Case 2 actors and roles.

Actor	Description	Role in case
Developer	Experienced climber and Climbers Association Board member	Violated historical bolting norms by developing established climbs as sport climbs
Climbers Association	Local volunteer-run climbing advocacy nonprofit	Initiated the installation of anchor bolts at the Cliffs
Land Manager	Representative of the County's division of natural resources	Worked with the Climbers Association on climbing area stewardship projects in the County; granted the Association permission to install bolts at the Cliffs
Mountain Project users	Rock climbing community members	Engaged in discussion thread regarding norm violation and the appropriateness of historical bolting norms
Traditionalists	Community climbers, generally, but not exclusively, of older age and with greater climbing experience; Some, but not all, participated in the Mountain Project discussion thread	Opposed the installation of sport routes at the Cliffs and met offline with the Developer and Association representatives to discuss and resolve the case

campers. Some viewed the bolt installations as a positive contribution; in the words of one commenter: “Many more people will get a lot more out of climbing at [the Cliffs] thanks to you and the [Climbers Association]. Haters gonna hate when it comes to outdated ‘ethics’ at a beginner crag close to town” (MP User ID42). A response to the preceding comment exemplifies the viewpoint of those opposing the bolt installations – referred to here as Traditionalists (see Table 3) – who perceived the act to be a violation of historical precedent (MP User ID20):

‘Outdated ethics’ are local history. If you don’t respect local history, you have no business speaking or acting for the community... Hundreds, probably thousands, have been to [the Cliffs]; yet no one drilled a route until this recent ‘community service’ [project].

Thread activity continued for a month, involving 48 Mountain Project users with varying levels of engagement. Several themes emerged from the debate (see Table 4). The predominant topic was whether bolting norms should adhere to historical precedent or cater to the needs of the growing cadre of climbers looking for safe and convenient climbing. Parallel discussion centered on who should decide what norms governed bolting at the Cliffs. Some commenters held that it should be a majority preference, while others afforded more weight to well-known, experienced climbers.<sup>5</sup> Still other comments questioned the role of the

<sup>5</sup> A tradition among climbers, generally, is that the first ascensionist of a climb should dictate the protection on it (e.g. whether bolts are placed on the route), although the norm has been argued and broken on many occasions – often leading to debate and conflict. The tradition was impossible to uphold in this case, as no record existed for first ascensionists of the area.

*Table 4: Central themes of discussion thread regarding bolting at the Cliffs.*

Themes	Illustrative comments
Whether norms should adhere to historical precedent or be adapted	<p>What I don't understand is why some of you are so concerned with the bolts being installed in the first place...it's a very convenient crag for new climbers to access and get outside (MP User ID37).</p> <p>You can't rationalize the destruction of climbing traditions by saying well all these new gym climbers want bolts so the [Climbers Association] is gonna give em what they want (MP User ID5).</p>
Appropriate process for establishing bolting norms	<p>Climbing is not and will never be a democracy...You could have 1000 climbers in [the area] and their voice or votes should never trump the style and vision of the first ascensionists, the people they climbed with, or knew the standards of the time (MP User ID14).</p>
Role of the Climbers Association in norm establishment	<p>This is a disturbing trend. These 'coalitions' and their 'board members' are wrong if they think an ok by the city or whoever supersedes long-held traditions and ethics (MP User ID5).</p>
Lack of knowledge regarding the history of climbing at the Cliffs	<p>Putting the history out there, even if only posted to this forum, will help climbers understand what [the Cliffs] means to the past generation and encourage them to preserve that history (MP User ID42).</p>

Climbers Association in establishing community norms, challenging that authority bestowed by the County did not equate to a social license from the climbing community. Finally, some commenters expressed frustration at the lack of collective knowledge regarding historical climbing at the Cliffs and other commenters acknowledged they would like to learn more about that history.

Climbers Association representatives also engaged in the discussion. The Developer posted several times, including a post in which he apologized to the community for the disruption that had been caused. The developer maintained the appropriateness of his actions, but stated: "I will stop installing anymore sport routes unless a large majority of the community deems it's necessary" (MP User ID45). The Association Board President also commented, noting that the Developer acted beyond the limited bolting the Association had authorized him to carry out, but offering to resign if it help maintain a good relationship between the community and the Association (MP User ID1). Subsequent commenters rejected the idea (MP User ID20, ID32, ID47), but some did call for the Developer to be removed from the Association Board (MP User ID15). Roughly three weeks after the Mountain Project discussion thread was initiated someone removed the hangers from all the newly installed bolts at the Cliffs, rendering the bolts unusable, but stopping short of permanently chopping or pulling them from the rock.

### **5.2.2. Norm violation resolution**

Resolution of the Cliffs bolting incident took place offline, but not without incident. The Developer and Association Board President, accompanied by several younger climbers, met up with several Traditionalists – some of whom were

highly-regarded local climbing icons – at a local brewery. The conversation lasted for several hours, with each side voicing the concerns that had been expressed in the Mountain Project thread (Interview ID2A). Eventually a “reluctant compromise” (as later characterized on the discussion thread; MP User ID15) was reached that the top rope anchors would remain, but the other bolts would be removed.

The Developer, however, did not consider the issue settled, and asserted that a vote would be held at an upcoming stewardship day – an event involving trail work and cleanup in the Cliffs area. The informal survey took place on a Saturday, with results suggested support for the new bolts (25 out of 28 people surveyed), but pressure on the Association Board from Traditionalists proved more influential. The following Monday and Tuesday the Developer pulled the bolts, patched the resulting holes, and camouflaged the patches to fit in with surrounding rock. The act was announced by the Board President on the discussion thread, which was immediately followed by a post from the Developer. The Developer’s post closed with the statement (MP User ID45):

I am truly sorry for my actions. My actions were done with the sincere intention of preserving and improving [Cliffs] climbing experience. I should have consulted the Board and the community prior to installing sport climbs. I will never take such actions again without gathering Board and Community input/support.

### **5.3. Comparative case analysis: social sanction functions across rule and norm violations**

This study is guided by two objectives: to identify functions that social sanctions serve in the maintenance of community institutions, and to examine how these functions differ when cases of rule and norm enforcement are compared. Four functions were proposed: (i) institutional enforcement, (ii) within-community signaling regarding institutional content and the consequences of institutional violations, (iii) external signaling of community credibility, and (iv) creating an opportunity for deliberation. This section reviews study findings in light of study objectives and these proposed functions.

As summarized in Table 5, evidence of all four functions are found between the two cases examined. Evidence of institutional enforcement in the case of external rule violation (Case 1) is indirect – due to the deletion of the case’s Mountain Project thread – but nonetheless strong. In the words of the Climber: “The climbing community came together and shamed me on Mountain Project” (Interview ID1B). Evidence of institutional enforcement in the case of community norm violation (Case 2) is less clear, in large part due to disagreement over appropriateness of historical bolting norms at the Cliffs. It is evident that some climbers attempted to apply social sanctions online and that traditional bolting norms were eventually upheld. But, the effectiveness of social pressures to conform to traditional institutions appears to be undermined by a lack of consensus following resolution of the case – a point that is returned to below.

Table 5: Comparative case analysis summary.

	Case 1	Case 2
Case characteristics		
Institution violated	Forest Service raptor nesting route closure	Prohibition on bolting of traditionally bolt-free routes
Institution type	Externally-established rule	Community-established norm
Potential consequences	Material and social	Social
Evidence of social sanction functions		
Enforcement	Strong	Mixed
Community signaling	Strong	Mixed
External signaling	Strong	None
Deliberation	None	Strong

Evidence of both community and external signaling is strong in Case 1. Although the effectiveness of signaling is beyond the scope of this paper, it is clear the Institutional Enforcer started a Mountain Project thread about the nesting closure violation with the express purpose of communicating the consequences of disregarding the closure to other climbers: “I was trying to leave the impression with the community that if you do this you will be caught and you will be outed. That the consequences are both legal and social.” The Institutional Enforcer was further using climbers’ response to convey the climbing community’s credibility to the Forest Service: “I was interested in targeting the other climbers because I wanted to demonstrate the climbing public’s reaction to the Forest Service. And I got exactly what I thought I would get.” While offering clear evidence of both types of signaling, the quotes also exhibit their interrelatedness, and raise the question of whether the two types of signaling, although conceptually distinct, are separable in practice. This case’s events suggest that internal signaling might be feasible without external signaling, but that the reverse may not be, as external signaling to Forest Service officials operated *through* the exercise of internal climbing-community signaling.

For Case 2, in contrast, evidence of community signaling is complicated by disagreement over community norms: climbers conveyed their understanding of the appropriate institutions, but regardless of what that understanding was, it was met with resistance from the opposing view. No evidence was found for external signaling in Case 2. The Climbers Association reluctantly reached out to the Land Manager when the bolt hangers went missing from the Cliffs, and the reported response from the Land Manager was “you should handle this internally in the community; if you can’t handle it I will have to get involved and I really don’t want to get involved” (Interview 2A). Ultimately, the Case 2 Mountain Project discussion was more of a liability to the climbing community than a signal of credibility, as it communicated intra-community disagreement and conflict, rather than coherent community institutions and enforcement.

Not evident in Case 1 is deliberation over the appropriateness of the institution in question – the social sanction function that dominated the interactions of Case 2. The reason appears to rest in the difference between externally-imposed rules and community-derived norms. The bolting norms of Case 1 are perpetually open to adaptation by the community, whereas the nesting closure of Case 2 is grounded in the legal authority of the Forest service to both *determine* and *enforce* nesting closures. Climbers are deterred from openly countering the rule by material sanctions and publicly contesting the rule puts the interests of the wider climbing community at risk by threatening climbing access. Reflecting hypothetically on the events of Case 1, the Institutional Enforcer commented (Interview ID1A):

[T]here are bolt wars all the time, but what you never see is eagle wars. You don't want to get in a public eagle war because...if that kid had gotten in that war with me, the U.S. Forest Service would have paid him a visit. And with the other climbers – he would have been a persona non-grata. He would never have lived it down. And so I think there is no incentive to flout the law there, because when you get caught there are consequences.

Although the deliberations of Case 2 ended in the maintenance of traditional bolting norms, it appears that the equilibrium is a fragile one. In the words of a Climbers Association representative: “There is a generational gap, and we were caught in the middle and pulled both ways” (Interview 2A). As the composition of the climbing community continues to skew towards more young climbers ignorant of, or indifferent to, historical precedent, it is likely that the challenge to traditional norms will continue to build. As stated by one of the Traditionalists: “I think it is going to continue to be a fight, and maybe after I am dead and gone the ethos will eventually change, but as long as I am around I am going to push for traditional ethics” (Interview 2B).

## 6. Discussion

This study offers contributions to the understanding of institutional maintenance and collective action beyond climber self-governance contexts. Perhaps most notable is the relative durability of Forest Service regulations when compared to community bolting norms. This durability is both a strength and handicap to collective action outcomes. On one hand, it contributes to stable institutional environments where rules and enforcement actions are known and the impacts of a governing arrangement can be more easily assessed over time. On the other hand, it makes institutional adaptations in response to changing conditions or learning more difficult, and the likelihood that inappropriate or ineffective institutions persist – even in the face of community opposition (Kinzig et al. 2013). The land manager-climber co-management arrangement documented in this study is one manner of addressing such shortcomings; additional research comparing this arrangement with less collaborative top-down institutional structures can assess the extent to which the benefits of co-management lead to more effective processes and outcomes in the long term.

As discussed earlier in this paper, the buttressing of imposed rules-in-form with social pressures is contingent on a community's internalization of the rule and a willingness to apply social sanctions alongside (or in the absence of) material sanctions. As this paper's first case illustrates, many climbing communities have adopted government-imposed raptor nesting closures and are willing to enforce them. Yet, other land management regulations do not seem to engender the same response – such as bans on BASE jumping (parachuting off of cliffs) in national parks. The reason for the internalization of raptor nesting closures is beyond the scope of this study, but may stem from climbers' appreciation of the regulations' protective function regarding wildlife and the environment. Individuals and communities are more likely to accept and adhere to institutions they deem legitimate; climbers likely perceive rules protecting endangered species as more legitimate than paternalistic regulations that needlessly impinge on personal autonomy (Olivier 2006).

As with any case study research, certain case-specific factors should be accounted for when considering the study's findings. One such consideration is the central role of authoritative individuals within the rock climbing communities studied. In the raptor nesting closure violation case, a respected and long-time member of the community was central to both initiating and resolving social sanctioning and its aftermath. In the community bolting norm violation case, community members emerged to facilitate various stages of this process, but without appearing to assume the same pivotal function. The causes for the difference are likely several – including the types of institutions involved, the communities in question, and the nature of the institutional violations. It is further likely that the characteristics of the leaders in each case, and the actions that they took, contributed to the divergent outcomes that were observed. Future research on institutional maintenance is well-advised to examine the role of such leaders and leadership in shaping collective action processes and outcomes.

An additional consideration is the use of an online platform – the Mountain Project website – as a forum for social sanctioning and deliberation. Online platforms are a dynamic example of the human-devised mechanisms that facilitate institutional enforcement when in-person monitoring and communication is unlikely (Ostrom 2000). Across many activities and situations, the difficulty of real-time monitoring means that many rule or norm violations go unnoticed, as do isolated incidents of enforcement. As seen in the study cases, online platforms are a virtual megaphone, projecting institutional violation and enforcement activities to a broader subset of the community, and beyond, and allowing for the engagement of community members in social sanctioning and deliberation that would not otherwise be possible. Furthermore, online platforms may offer potential sanctioners a level of impunity from retaliation, decreasing the costs of sanctioning and risk of counter-punishment (Kurzban et al. 2015), thereby encouraging enforcement actions that might not occur off-line.

Of course, online forums are also environments notorious for “trolling” and unproductive, even destructive, interpersonal shaming (Loveland and Popescu 2011). While some such activity occurs in Mountain Project forum discussions,

two factors likely contribute to the platform arguably serving as a net-positive forum for institutional maintenance. The first is monitoring by Mountain Project personnel, in which overtly harmful content is removed, and consistently-offending users are blocked. The second is the fact that the majority of active Mountain Project user's offline identities are either represented or traceable, and reputational information can be accessed – such as when a Mountain Project account was created, how often they contribute to the site, what real-world organizations they belong to, etc. Future research should examine the extent to which such factors support or inhibit the online facilitation of offline collective action institutions.

Finally, in considering these findings, it should be reiterated that the cases examined in this study are examples of institutional maintenance with limited generalizability. As pointed out by a Mountain Project representative (Interview ID3), they suggest that effective institutional governance through social sanctioning *can* occur in rock climbing communities, but do not offer an indication of the frequency with which it does, or whether similar cases occur with meaningful consistency. Nonetheless, the institutional richness of climber self-governance contexts, combined with contemporary challenges to historical climbing institutions, situates the topic as an opportune empirical setting for collective action research, offering promising insights into how community rules and norms function, persist or evolve over time, and to what ends.

## 7. Conclusion

This paper set out to better understand the functions that social sanctions serve in the maintenance of community institutions and how these functions differ when cases of rule and norm enforcement are compared. Study findings suggest that beyond enforcing community rules and norms, social sanctions can serve as within-community signals, as well as cooperative signals to external entities. In the case of community norms, social sanctioning provides the opportunity for deliberation and debate regarding appropriate institutional content and scope – even raising questions over how community institutions are determined. The comparative case examination further illustrated the robustness of externally-imposed regulations, when buttressed by normative social pressures, and the relative vulnerability of social norms to changing community composition.

Whether the adaptability of social norms represents an institutional weakness or strength, generally speaking, is contingent on the context in question and the perspective of the observer. This paper suggests that where community members seek to sustain institutions unchanged, social sanctioning may undermine traditional norms by activating internal community rifts. On the other hand, where institutional adaptability is desirable, social norms may prove appropriate – if sometimes contentious – governance tools. The impact of social sanctions thus likely depends, in part, on the institution type in question; community norm governance may be sustained by social sanctioning-inspired deliberation in the long run, however, there is no guarantee that traditional norms will be upheld in the process.

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## Appendix: Data Collection & Analysis Details

Table A1: Interview participants.

Interview ID	Relevant case	Interviewee description
Interview ID1A	Case 1	The Institutional Enforcer in Case 1; Long-time member of local climbing community with history of contributing to climbing management and advocacy efforts
Interview ID1B	Case 1	The Climber in Case 1; College student and climber of two years
Interview ID1C	Case 1	The Observer in Case 1; Volunteer working in conjunction with land management agency and climbing community to monitor raptor nest activity
Interview ID1D	Case 1	U.S. Forest Service representative not directly involved in, but familiar with, Case 1
Interview ID2A	Case 2	Climbers Association Board member and experienced climber involved in the case
Interview ID2B	Case 2	Case 2 Traditionalist; Experienced climber opposed the bolting activity at the Cliffs who both commented on the Mountain Project thread and met with the Developer and companions to resolve the incident
Interview ID 3	Cases 1 and 2	Mountain Project representative and experienced climber

*Table A2: Qualitative analysis codes and definitions.*

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Code	Definition
Institutional enforcement	Actions (verbal or physical) applied to generate interpersonal pressures to encourage conformance, or as a consequence of institutional violation, such as expressions of approval or disapproval
Community signaling	Within-community conveyance of information regarding institutional content and the consequences of institutional violations
External signaling	Strategically portraying within-community enforcement of rules to an external entity or audience
Deliberation	Discussion and/or debate regarding the proper scope, content, and focus of community institutions

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