

Signaling Safety: Characterizing Fieldwork Experiences and Their Implications for Career Trajectories

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ABSTRACT Numerous studies use quantitative measures to evaluate retention, advancement, and success in academic settings. Such approaches, however, present challenges for evaluating the lived experiences of academics. Here, we present a qualitative thematic analysis of self-reports of positive and negative experiences that occurred while conducting academic field research. Twenty-six semistructured interviews highlighted two central themes: (1) variability in *clarity* of appropriate professional behavior and rules at fieldsites, and (2) *access*, or obstacles therein, to professional resources and opportunity. In some instances, respondent narratives recalled a lack of consequences for violations of rules governing appropriate conduct. These violations included harassment and assault, and ultimately disruptions to career trajectories. A heuristic construct of a traffic light describing Red, Yellow, and Green experiences illustrates the ramifications of this distribution of clarity and access within fieldsite contexts. These results extend the findings from our previously reported Survey of Academic Field Experiences (SAFE) about the climates and contexts created and experienced in field research settings. Moreover, this study addresses specific tactics, such as policies, procedures, and paradigms that fieldsite directors and principal investigators can implement to improve field experiences and better achieve equal opportunity in field research settings. [*work environment, gender, field experiences, harassment*]

RESUMEN Numerosos estudios usan medidas cuantitativas para evaluar la retención, el ascenso y el éxito en ámbitos académicos. Tales aproximaciones, sin embargo, presentan retos para evaluar las experiencias vividas por los académicos. Aquí presentamos un análisis temático cualitativo de los autoreportes de experiencias positivas y negativas que ocurrieron mientras conducían investigación de campo académica. Veintiséis entrevistas semiestructuradas destacaron dos temas centrales: (1) variabilidad en la claridad de la conducta profesional apropiada y las reglas de los sitios de campo, y (2) acceso, u obstáculos en él, a la oportunidad y los recursos profesionales. En algunas instancias, las narrativas de los respondedores recordaron una falta de consecuencias por las violaciones a las reglas que rigen la conducta apropiada. Estas violaciones incluyeron acoso y asalto, y finalmente interrupciones en las trayectorias de sus carreras. Un constructo heurístico de un semáforo que describe las experiencias de Rojo, Amarillo, y Verde ilustra las ramificaciones de esta distribución de claridad y acceso dentro de los contextos de los sitios de campo. Estos resultados extienden los hallazgos de nuestra Encuesta de las Experiencias de Campo Académicas (SAFE) previamente reportada acerca de los climas y contextos creados y experimentados en entornos de investigación de campo. Adicionalmente, este estudio aborda tácticas específicas, tales como políticas, procedimientos y paradigmas que los directores de sitios de campo e investigadores principales pueden implementar para

mejorar las experiencias de campo y lograr de mejor manera la igualdad de oportunidades en sitios de investigación de campo. [ambiente de trabajo, género, experiencias de campo, acoso]

Colleges and universities emphasize the production and transfer of knowledge, and often operate as culturally siloed from the practices and rules that regulate nonacademic professional life (Ryan, Healy, and Sullivan 2012). Studies of gender and racial bias in the academic workplace often center on hiring, compensation, and promotion (Betrand and Mullainathan 2004; Milkman, Akinola, and Chugh 2014; Shen 2013; Williams and Ceci 2015). Such parameters are readily accessible and quantifiable but can fail to capture the lived experiences of scholarly workplaces that contribute to cumulative disparities across time and space. Established and emerging portraits of academic experiences reveal the risks that some members of these communities face due to absent or unclear rules governing appropriate workplace and campus behavior (Basow 2011; Cassell 2011; Meyers et al. 2015; Mitchell and Miller 2011). Moreover, gender and racial stereotypes produce additional inequities that limit peoples' learning and workplace opportunities (Bassford, Offerman, and Behrend 2013; Harwood et al. 2012; Harwood et al. 2015; Lewis et al. 2013; Sue et al. 2007; Sue et al. 2009).

Principles of community and codes of conduct can contribute to an institutional culture that promotes worker well-being (Huhtala et al. 2015; McCabe, Treviño, and Butterfield 1996; Treviño, Butterfield, and McCabe 1998). Clear reporting mechanisms, when present, contribute to resolving grievances (Christian et al. 2009; S. Clarke 2010). However, reporting offenses, particularly those that are based on gender, can come at a substantial burden to the reporter, and these procedures can be highly variable (Bergman et al. 2002; H. Clarke 2014; Riger 1991; Streng and Kamimura 2015).

Workplaces in the social and natural sciences include university- or industry-based settings as well as international locales that are sometimes geographically remote (Scott et al. 2012). These spaces vary greatly in their guidelines, behavioral norms, and reporting mechanisms, which can render researchers unaware of how to relate concerns or file grievances (Clancy et al. 2014; Meyers et al. 2015; Moylan and Wood 2016). Additionally, the temporally bounded nature of field research may increase the risk of poor regulation of this professional space (Howell 1998; Sharp and Kremer 2006). Yet the fieldsite is a primary workplace for many researchers and is characterized by the same professional and interpersonal challenges of any other academic setting, including risk of personal injury, psychosocial stress, and sexual harassment and assault (Hanson and Richards 2017; Ice, Dufour, and Stevens 2015). Therefore, fieldsites ought to be accorded the same considerations and expectations of professional conduct as other workspaces.

Our earlier Survey of Academic Field Experiences (SAFE), conducted in 2013, established that scientists, particularly during trainee stages, experience sexual harassment and sexual assault while conducting field research (Clancy et al. 2014). This finding was recently replicated in a targeted study of several hundred archaeologists (Meyers et al. 2015) and among several hundred social work students during field placements (Moylan and Wood 2016). Whether reported to officials or not, these experiences, particularly those that occur in the contexts of training or data acquisition, influence individual opportunities for continued access to research sites and data, degree completion, and career success (Stephens and Levine 2011). Some researchers have questioned the pervasiveness of gendered discrimination in the sciences, casting doubt upon the possibility that it influences career trajectories (Ceci and Williams 2011; Williams and Ceci 2015). Here, we extend our earlier findings to qualitatively assess the effects of experiences of gender-based discrimination, harassment, and assault in field research. We interviewed a subset of SAFE survey respondents and conducted thematic analyses on their responses to semistructured questions, exploring how such experiences shape perspectives of the STEM research climate, affect individual motivation and ability to continue in fieldwork-based disciplines, and influence career trajectories.

RESEARCH DESIGN

Study Participants

For the SAFE study, we surveyed 666 respondents who had conducted field research across the life, physical, and social sciences (see Clancy et al. 2014). Respondents described research sites ranging from museum collections to domestic and international field locations. These included sites led by individuals collecting doctoral data to single-PI or team-led sites and field schools. Survey respondents had been students (high school, undergraduate, or graduate), postdoctoral trainees, staff, or faculty at the time of their field experiences, and the response demographics were mostly representative of race and sexual orientation (but not of gender) in academia (Clancy et al. 2014). Of the 666 survey respondents, 229 (35 percent) indicated they were willing to be interviewed. A nonrandom subsample ($n = 26$) of these respondents, selected to include a diversity of field experience narratives, were interviewed by Kathryn B. H. Clancy (KBHC) (Table 1). Interviewees primarily identified as anthropologists/archaeologists (23/26), female (23/26), and white (21/26). Interview respondents received a \$10 gift card to Amazon. The institutional review boards at the University of Illinois at Urbana-Champaign and the University of Illinois at Chicago provided ethical approvals for this research.

RESULTS AND DISCUSSION

Finding 1: Field Experiences Differ According to Presence or Absence of Rules, and Consequences if Rules Were Violated

The theme of *clarity* regarding appropriate behavioral expectations and rules, and the repercussions for breaking established rules, emerged from the interviews. Respondents described either a clear understanding of or ambiguity regarding what constituted appropriate professional conduct (rules) and procedures for recourse in cases of misconduct (consequences). Several respondents discussed their experiences at different field contexts over the course of the interview. Of the fifty-four field contexts included in this analysis, thirty-six field contexts recalled by twenty-one individuals were coded as having ambiguous or absent rules. Eighteen field contexts recounted by twelve individuals were coded as having clear rules or expectations of individual behavior.

Among the field contexts coded as having clear rules, field directors and researchers participated in explicit conversations, training, or meetings to establish site-specific policies. Senior researchers engaged in implicit modeling of these rules to other field researchers and often made themselves available for discussion. There was also evidence that the rules at these sites were enforced with observable consequences. In one specific example, the sexual harassment of a peer resulted in the perpetrator being asked to leave the fieldsite.

Study participants described field contexts with ambiguous or absent rules differently. These contexts were characterized by an absence of consequences when rules were broken. In these narrative interviews, respondents repeatedly described attempts to discern the appropriate cultural and professional rules of behavior at their fieldsites. In one instance, a respondent noted that an infraction was reported to the fieldsite manager, but the manager decided to allow the behavior to continue. In more challenging and ultimately dangerous cases, respondents could not discern any sort of behavioral boundary or found the accepted limits of appropriate behavior highly variable from person to person. Multiple respondents described experiences during which a fieldsite manager systemically harassed the junior researchers at the site. In describing a director of a fieldsite with ambiguous rules, a respondent said: "I feel like they just see this divide between the field and at home. What happens to you in the field, it's just like a different world so the way you behave can, it's just completely separated from your daily life." Inherent to these contexts was a lack of clarity regarding the rules, accompanied by abuses of power directed downward along the professional hierarchy of the site.

In some contexts, rules were present, insofar as they were articulated, but not enforced. The most notable manifestations of the presence or absence of rule clarity (and the corresponding uses and abuses of power) in our interviews were in descriptions of experiences of sexual harassment and sexual assault (USEEOC 2014; WomensLaw.org 2009).

Examples of sexual harassment included but were not limited to: unwanted flirtation or verbal sexual advances, fieldsite managers insisting on conducting conversations while naked, propositions, and jokes about physical appearance or intelligence that were sexually motivated or gendered. Examples of sexual assault included cases of unwanted physical contact, including physical intimidation, forced kissing, pressing genitalia on the respondent's body, attempted rape, and rape. We found sexual harassment described more often in conjunction with field contexts lacking clarity in codified rules or standards for appropriate behavior, as compared to those with clear rules. In one example, an interview respondent described frequent and systematic predatory behavior from several of the senior researchers at the fieldsite, all of whom would conduct these behaviors openly:

The head of the site would systematically prey on women. . . . I was in my bed one time and he was with a married master's student and she was basically just crying and she had to leave the site because he was seducing her and she couldn't say no. . . . I had to serve as a kind of bodyguard for some of these women and some of them would sleep on the floor because they were afraid he was gonna come into the room at night.

Over the course of the interview, this respondent often repeated that the victims of harassment and assault at the site "couldn't say no." The respondent's examples of women hiding, leaving, or confronting offenders did not deter the site director's behavior. The respondent also described favoritism received by men that further advanced their scholarship, demonstrating a different set of rules and experiences for men and women. This gendered divide in treatment was consistent across several field contexts with absent or ambiguous rules. In many of these instances, respondents reported that men appeared to be rewarded for what the respondent viewed as poor or inappropriate behavior, and women were only rewarded if they consented to harassment or sexual advances.

One respondent reported being sexually assaulted by a fieldworker who was local to the site. When she reported the attempted rape to her advisor, the following occurred:

[The director] believed my story but he didn't really know what to do. He was like, "In different cultures that's not abnormal." . . . He did talk to the guy, he just said that he needed to stay away from me and that I was feeling uncomfortable and I don't know how much it worked, it was still weird. Because at night we'd have a fire, and he'd still find his way to come and sit next to me and sit there and try to put his arm around me and I'd tell him to stop and leave or I'd move so that I'm never around him.

In this instance, the respondent knew that the attempted rape was outside of the boundaries of appropriate behavior and expected that reporting to the director would address this transgression. Instead, the respondent was forced to rebuff her attacker's advances for the duration of the field season. As detailed in the vignettes above, the lack of consequences for the violation of both implicit and explicit rules rendered them useless and effectively absent.

In the thematic analysis of these interviews, the theme of *access* emerged as a phenomenon related to the presence or absence of clarity in rules. A lack of clarity in rules regarding appropriate professional behavior in the field was associated with a denial of access or entrée to professional opportunities, including both tangible resources and perceptions others held of their professional capabilities. These denials of access manifested themselves in various forms, ranging from experiencing alienation and unprofessional behavior to being subjected to sexual harassment and assault. Twenty-five individuals recounted forty experiences during which there were inappropriate behaviors directed toward other field researchers we characterized as “alienating,” unnecessary tests of physical prowess, gendered divisions of labor, and sexual harassment and assault. Respondents described alienation as a feeling of isolation from other researchers or the research due to interpersonal interactions with peers or professional superiors that diminished their contributions to the project or removed them from the primary tasks of data collection or analysis. Twenty-four individuals recounted thirty-one experiences in which feelings of alienation and emotional distress were precipitated by the perception that their expertise or contributions to a field project were underappreciated or devalued. Some participants articulated that this doubt in their competence shaped their careers moving forward. One respondent, after running a remote fieldsite for eighteen months, described spending several days with her senior collaborators who repeatedly diminished her contribution to the project, only acknowledging her effort in the following moment: “Then, finally, he is driving me home drunk and finally gives me this admission that . . . ‘you know, what you and your boyfriend did in the field is really significant.’ And [the boyfriend] is the guy who stayed with me in the field for two or three months out of eighteen. [My boss] could not admit that it was me who did this work.”

Gendered divisions of labor were characterized by women and men being tasked with different kinds of responsibilities that often mapped onto societal prescriptions regarding women’s physical limitations or natural inclinations. These tasks included women being required to do the cooking and shopping in team settings. Study participants more often described these experiences as occurring in contexts in which rules were absent than in contexts in which rules were present and also enforced (Figure 1). As illustrated by these narratives, differences in experiences mapped not only to the presence or absence of rules but also to whether or not there were consequences when these rules were tested and and/or violated.

Another manifestation of denials of access came in the form of behavioral “tests” that served to establish in-group/out-group dynamics (Kruglanski et al. 2006), denying out-grouped individuals social and professional access to the activities of the fieldsite. Examples of testing behavior included, but were not limited to: going on long, strenuous hikes while refusing to tell the respondent how long they would be gone from camp; not permitting the

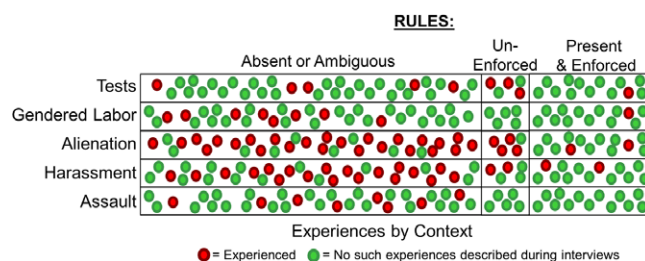


FIGURE 1. Interviews with twenty-six subjects covered fifty-four different field contexts. There were three rule states that emerged from interviews: rules absent or ambiguous ($n = 34$), rules present but unenforced ($n = 5$), and rules present and enforced ($n = 13$). [This figure appears in color in the online issue]

respondent food, water, or urination breaks during data collection; and sharing pornographic images with the respondent and gauging her or his reaction. Many of the performances of physical feats were not required for the successful completion of data collection. The following story shared by a respondent provides an example of a physical test:

We would do these really, really long days but we wouldn’t be warned when they were coming, they would just happen and so I wouldn’t bring enough food. . . . And I would try to vocalize, “I am tired. I can’t go any further. I need to eat.” . . . The second time I spoke up, there were the other two girls who were quick to say, “Yeah, we’ve been out a really long time, it’s 8:00 p.m., let’s go eat.” We started getting snide comments like, “Oh, well the ladies are hungry so I guess we have to leave.”

The respondent explained that women at this site were compelled to participate in tests of physical endurance with men who were competing against one another. This, in her words, “pushed everyone really past the limits of what they were comfortable with.” In these respondent narratives, experiences of alienation, gender division and discrimination, and tests were described along with a lack of clarity regarding behavioral expectations and consequences. Clear rules seemingly served as critical precursors for equitable distribution of access to professional resources.

While describing restrictions to access in these field-sites, respondents also often discussed their own vulnerability in these contexts. In addition to describing their physical stature or professional standing in comparison to their colleagues, respondents expressed feeling “vulnerable,” “powerless,” “not in control,” “isolated,” or like “prey.” Few interviewees knew of tactics to avoid these feelings beyond leaving science or simply getting older. As one respondent noted, reflecting back on several decades of intermittent sexual harassment across her career, “I never did anything about it. I would today. Of course, it doesn’t happen to people who are in their forties, for the most part, it happens to people who are in their twenties.”

Finding 2: Hostile Environments and Negative Experiences Influenced Careers

Although our interviews were not structured to explicitly inquire about consequences for careers or professional trajectories, this topic emerged organically in most interviews (23/26 respondents). Some respondents described their productive, enjoyable field experiences as reasons to pursue academic work. Many respondents expressed worries about the effect of field experiences on their careers; that is, that a particular field experience could influence their reputations negatively, that it could lead to poor letters of reference or strained collaborations, or that it could result in a lack of access to the site in the future. Several respondents also described explicit instances where they believed their negative field experiences directly led to instances of career stalling ($n = 8$), lateral career moves (e.g., relocating to a different institution or fieldsite, $n = 4$), or leaving their career paths altogether ($n = 5$). Of the respondents who described positive experiences during fieldwork ($n = 12$) and discussed their postfield career trajectory, none reported any negative career effects.

For many respondents, challenges faced in the field marked the beginning of persistent problems, many of which influenced career trajectories beyond their time at their field-sites. In select cases, collaborators withheld vital information required for data analysis and publication. In other instances, respondents reported that psychological trauma from harassment or assault compromised their ability to revisit, analyze, and publish data collected under difficult conditions. Many respondents recounted stories from the data-collection phases of their doctoral training. One respondent who was sexually assaulted by an informant noted persistent negative consequences resulting from this experience: “And it did prevent me from even thinking about my sites for about a year after returning from the field because of the proximity of the incident to my fieldsite. Any time I tried to think about [my project], it put me back in that field and back in that incident.”

Another respondent who left a fieldsite because of the hostile conditions experienced prolonged ramifications of that environment. She said:

Because I work in this area of the world and work at certain sites where he is pretty well known, it kind of became clear that I was going to have to play along a little bit of the political game where future research would have to. . . . I'd have to be careful about how I interact with this person. . . . Because my research was now starting to be centered around this area and he had this reputation and everyone knew him. So I had basically an arm's-length professional connection with this person but then, also, he sort of started to be like as if he expected me to become the next mistress.

Several respondents described having to endure repeated encounters with individuals who had made their work environments hostile, even after leaving their field-sites. These interactions occurred on their university campuses, at conferences, or online, and a few targets of harassment

received love letters even after repeatedly rebuffing the advances of their colleagues.

For some respondents, a hostile environment in the field was so detrimental that they decided to significantly alter their career paths. One respondent described enduring many abuses by her advisor while in the field. Her advisor forbade her from urinating all day while conducting fieldwork, criticized her weight and took food from her, questioned her intellectual capabilities, and threw objects at her when angry. Upon returning to her home university, she found every attempt to report these abuses rejected by administrators in her home department, her graduate college, and the campus at large. She said of the process:

So when I did talk to the faculty director or the chair of the department, I'd say that they gave us no choice but to leave the department. . . . After leaving the institution, the next year this advisor got three more students. There was no sort of repercussion. . . . I felt like I had this type of plague or something . . . it's forcing the person who was victimized to keep confronting and keep pushing. After you go through a traumatizing experience, the last thing I wanted to do was push the hell out of the department.

While this respondent tried to stay in graduate school, no other professor in the program would agree to advise her, and she felt she had no option but to withdraw from the program.

Across the twenty-three interviews in which career trajectories were discussed, interview participants also described considerable cognitive and psychological burdens. The continual processing and decision making that goes into negotiating a hostile work environment and maintaining employment can be exhausting and lead to a reduction in mental and physical health (Hershcovis and Barling 2010; Loi et al. 2015). The lack of clarity regarding shared codes of conduct and the denials of access that characterize poor field contexts suggest addressing these critical aspects of fieldwork could improve inclusivity and career success.

Finding 3: Egalitarian Behaviors and Enforcement of Rules Governing Behavior Enhanced Field Experiences for Respondents

Positive experiences in the field enhanced the career, research, and leadership trajectories of respondents. Many respondents described positive field experiences that intensified their interest in their research. Notably, respondents who have stayed in the academic pipeline despite negative experiences described adopting procedures and paradigms to provide positive experiences and context for their trainees and junior collaborators.

Three important observations emerged from the descriptions of positive field contexts provided by twelve of twenty-six respondents: the sites were fair and/or egalitarian in execution, living and working conditions were intentional and safe, and directors anticipated problems and created avenues for conversations or reporting. Respondents who described these experiences highlighted the importance of having women in leadership roles at their sites, particularly

if the rest of the site leadership valued those women's roles. Egalitarianism manifested in many different ways across respondents' experiences. Nearly all respondents who described positive field contexts mentioned the importance of having all scientists' perspectives valued, even when there was variable expertise at the fieldsite. As one respondent explained, "But, you know, even as young grad students, I was given the same, I was treated the same as people with PhDs . . . with the same consideration as people with PhDs and asked for input and not talked down to." Similarly, several respondents described more egalitarian structure in the day-to-day operations of the site. While several respondents were careful to point out the ineffectiveness of complete compression of fieldsite hierarchy, they did have better experiences when those in power were approachable. Further, respondents reported better working conditions when tasks were shared equally.

Several respondents observed explicit conscientiousness in principles that framed their fieldsites, in which everyone was enculturated to look out for each other. This kind of climate also made respondents feel able to talk to their peers or directors if there was a problem. According to one respondent:

I think there was just enough structure there where it was really clear kind of what the rules were and kind of what to do if something went wrong. And just based on the fact that people were genuinely nice, that if something had happened that would have made me really uncomfortable, I would definitely not have been afraid to find someone to talk to about bad behavior or something going wrong.

One particularly notable experience occurred when the fieldsite directors strongly demonstrated that they valued every member of the research team. The respondent observed that one student had a physical disability that made performing her fieldwork difficult; the directors found a way to accommodate her so that she could be a productive field scientist. Later in the season, this precedent facilitated a different student with an injury to have assistance and physical accommodation so that he could continue to work and contribute. This respondent concludes: "And I think that those really sent the message that people are equal and respected, and I think that that just having that attitude and maintaining that culture made everyone happier."

Conscientious fieldsite directors explicitly established the culture of the site. Among favorable contexts, explicit anticipation of potential problems appears to be a successful strategy to prevent problems or ameliorate conflict. Many positive field experiences mirrored the following example:

The field director, on the first day, gathered everyone around and even though he was very casual about it, he welcomed us to the site and listed the ground rules. . . . He made it seem that we were all at the same level and if there were any problems, come to him. So he made it clear how he was going to act as a field director. Sort of what his goals were this field season and how we should all behave and how we should be respectful of others and don't goof off but we were also going to have fun in the evenings and when we're not working. We shouldn't be afraid

to come to him with any problems, if they were to occur. And when a problem did occur, I know he took care of it or handled it appropriately.

Indeed, physical safety and well-being were foundational to positive contexts and experiences. Whereas poor living conditions aggravated interpersonal problems, good living conditions eased them. At fieldsites where directors preempted problems, there were few to no obstacles to access. Several respondents did acknowledge the difficulty of having this conversation among field scientists. As one respondent noted:

It's kind of like having the sex talk with your kids. No one wants to have that conversation because it's awkward. And it is awkward because it's not necessarily expected of you to sit down and lay out expectations in terms of field behavior but I think it's worth getting it out of the way and having an honest conversation and I think it makes for a better experience overall for both the people who are running those field programs but also the people that are a part of the team.

GREEN MEANS GO: EQUAL OPPORTUNITY TO POSITIVE FIELD EXPERIENCES

Our findings strongly suggest that codes of conduct (rules) and accountability for transgressions (enforcement of rules) are integral to facilitating productive contexts, positive fieldwork experiences, and equal opportunity in professional development. In this article, we introduce a heuristic construct of a traffic light (Figure 2) to characterize experiences as "Red," "Yellow," or "Green." Using this construct, we

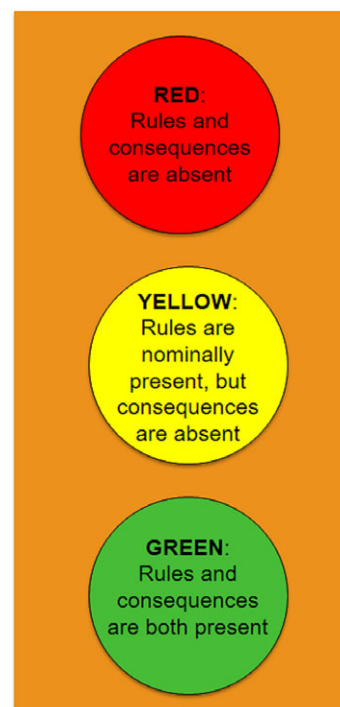


FIGURE 2. Traffic-light heuristic diagram characterizing field experiences in the presence/absence of rules and enforcement. [This figure appears in color in the online issue]

explore how variability in experiences of clarity of rules was connected to a constellation of experiences, including access to professional opportunities and resources.

Norms of conduct fell along a continuum that we categorize from Red to Yellow to Green contexts. Yellow and Red contexts differed with regard to the clarity of foundational rules. Red field contexts could be characterized by an absence of behavioral or professional rules and a lack of consequences for violations of assumed social norms. In Yellow field contexts, respondents noted that rules of behavior were in some way communicated to or known by the respondent but that when rules were violated, accountability or consequences were absent or heterogeneously applied to members of the research team. When rules were not enforced, such as in Red and Yellow contexts, respondents more often described experiences of harassment, assault, and negative career trajectories. Importantly, rules alone without enforcement were insufficient. Perhaps most notably, sexual assault occurred only in Red and Yellow field contexts. Yellow field contexts—those in which there was some communal awareness regarding appropriate behavior but infractions were not met with consequences—were similarly characterized by harassment, assault, and negative career trajectories largely on par with Red contexts. Green contexts could be clearly differentiated from both Yellow and Red contexts. When appropriate behavior was outlined, modeled, and enforced by senior members of the research team, negative events and experiences appeared less frequently in the field narratives, consistent with other studies exploring the relationship between workplace harassment and rule enforcement. Moreover, because rule transgressions were addressed, the manifestation of a hostile work environment was seemingly prevented in Green contexts.

Denials of access to physically and emotionally safe work environments, consistent with Red and Yellow contexts, were reported to negatively affect careers for many respondents. Respondents who experienced negative career outcomes referenced the acute and cumulative effects of negative experiences during fieldwork and lack of agency to change them within the professional context; lack of aptitude or interest were never mentioned as reasons for negative changes to career trajectories. Experiences of conscious or unconscious bias, stereotypes regarding competency, and workplace harassment and bullying can undermine an individual's ability to pursue a chosen or preferred career for individuals historically, and contemporarily, underrepresented in fields dominated by white men (Hill, Corbett, and St. Rose 2010; Ong et al. 2011). The metaphor of a “ton of feathers” in respect to the experience of microaggression is apt here: the accumulation of many relatively small negative acts that call into question one's professional value because of gender or another aspect of identity leads to a slow but effective crushing of investment and effort in academic pursuits. Gender harassment, or put-downs that stem from a perpetrator's perception of one's gender identity or performance, is not only substantially more

frequent than unwanted sexual advances but can inhibit professional and psychological well-being (Leskinen, Cortina, and Kabat 2011). The accumulation of these assaults can sabotage the career of even the most resolute researcher (Blickenstaff 2005; Sue 2010).

Our previous report from the larger survey, along with these detailed interviews, revealed that both women and men have negative experiences, but women more often described negative experiences originating from “up the hierarchy.” Workplace abuse by superiors, whose position and status represent the institution at large, has greater negative effects on psychological well-being, job satisfaction, and job performance than does abuse by peers (Hershcovis and Barling 2009). Further, workplace sexual harassment and assault have greater negative effects on targets who are younger (Chan et al. 2008). On average, women trainees are subject to abuses that differ both in quantity and quality from those experienced by men (Clancy et al. 2014; Meyers et al. 2015; Salin and Hoel 2013; Simpson and Cohen 2004) and therefore may be more vulnerable to negative long-term career consequences. Thus, policies that seek to establish clarity of rules of behavior—in particular, mechanisms of enforcement (i.e., transforming the workplace into a Green context)—have the potential to reduce gender-differentiated career obstacles and professional disparities.

Importantly, women are not more likely than men to want to abandon their careers (Conklin and Desselle 2007; Pololi et al. 2012; Xu 2008). Despite this commitment parity to academia, women are more likely to change positions than are men, and those who do so cite dissatisfaction with research support, advancement, and academic freedom (Xu 2008). Lateral moves—moving from one institution or site to another to have the same role—which were associated with Yellow and Red field experiences in our study, can be detrimental to productivity and have been associated with lower job satisfaction (Kalleberg and Mastekaasa 2001). While some authors have cited academia as a prime example of “boundaryless” careers (Arthur and Rousseau 1996), each move, whether to a new fieldsite or new university, carries a significant cost to productivity, especially in early career stages (Settles et al. 2006; Xu 2008). Those who make lateral rather than promotional moves within academia may find themselves with fewer career options or fewer career successes.

Women remain underrepresented in STEM fields, both in academia and industry, across many roles (Beede et al. 2011; NSF 2013). This situation is not solely attributable to generational lags; there are currently fewer women being hired in STEM positions relative to men (Kaminski and Geisler 2012). Some scholars have posited that the underrepresentation of women in the STEM academic pipeline reflects a combination of competing goals (e.g., family versus career), a lack of interest, poorer performance, or lower motivation (Ceci and Williams 2011). Such attitudes are consistent with the perspective that academia is a

meritocratic system, despite substantial evidence to the contrary (Cech and Blair-Loy 2010; Nielsen 2015). In contrast, a deficit theory framework outlines the ways in which women and individuals whose race, ethnicity, religion, sexual orientation, alter-ability, and socioeconomic class have long been underrepresented in academia have “fewer opportunities and more obstacles” (Settles et al. 2006, 47). Our findings and others are consistent with predictions derived from deficit theory (e.g., Amrein et al. 2011; Clancy et al. 2014; Kaatz and Carnes 2014; Settles et al. 2006; West et al. 2013). Experiences of discrimination, marginalization, and sexual harassment and assault during fieldwork are greater for women than for men (Clancy et al. 2014; Meyers et al. 2015), and negative workplace experiences have been explicitly acknowledged as an obstacle to career success (Kaatz and Carnes 2014; Settles et al. 2006). Negative effects on productivity due to a hostile work environment compound disparities. Targeted individuals experience diminished productivity, which seemingly justifies their initial marginalization and reduced access to professional resources (Lim and Cortina 2005; Schneider, Swan, and Fitzgerald 1997). A recent study demonstrating that biases against women in academic STEM hiring were expressed by both men and women highlight not only the permeability and internalization of bias but also that positioning women in leadership is not alone sufficient to counteract gender discrimination (Moss-Racusin et al. 2012). Further, while underrepresented in our sample, those with intersecting identities who experience oppression and discrimination, such as women of color, gender/sexual minorities, and/or individuals with physical disabilities, are at increased risk of additive effects on their experience of the workplace and their career trajectories (Berdahl and Moore 2006; Higginbotham and Weber 1999; Konik and Cortina 2008; McGuire 2000).

Those in power, whether due to gender, race, or positioning in the workplace hierarchy, are less likely to be consciously aware of the effects of their actions because their actions hold fewer repercussions. According to one study, workplace bullying increased among perpetrators who saw themselves as more employable (De Cuyper, Baillien, and De Witte 2009). That is, those who had fewer worries about the negative repercussions of their actions due to their perception of their employability were the ones who committed acts of bullying. The power that directors hold and a lack of conscious awareness of what constitutes inappropriate behavior can lead to a misuse of that power, particularly when men hold power over women (Bargh and Raymond 1995). Explicit knowledge of the emotional and professional consequences of workplace harassment and assault are critical to changing research practices and academic culture. We suggest that the permissive and ambiguous nature of Red and Yellow contexts protects potential perpetrators not only from repercussions but also from forming or confronting the conscious awareness of the pervasive and long-term effects of their actions for individual targets, bystanders, and the intellectual landscape of our scientific community.

While limited in scope, the approach of the present study provides initial, targeted information about the co-occurrence of fieldsite structure, culture, and lived experiences of academics in field-based sciences. The twenty-six interviews may have disproportionately been drawn from individuals with negative field experiences, as these individuals may have been more likely to agree to be interviewed. These interviews were, however, derived from a larger survey in which harassment and assault were relatively common among respondents. Additionally, prioritizing the discussion of negative experiences in the interviews allowed for a better understanding of the very phenomena many academics are motivated to remedy. The consistency of emergent themes and the details of specific experiences across the interviews indicate systemic phenomena that are shaping the field experiences and career trajectories of researchers. While our conclusions derived from field contexts and experiences do not directly evaluate other professional spaces, including classrooms, departments, laboratories, and conferences, similar power structures and workplace-climate issues are likely operating across all of these contexts. Importantly, the results from the SAFE study are largely consistent with previous and subsequent investigations of harassment and assault in other professional settings (McDonald 2011; Meyers et al. 2015; Nelson and Carroll 2012) and more broadly in higher education (Cantor, Westat, and Chibnail 2015). Future exploration of hostile academic work environments should extend into other academic contexts (i.e., laboratories, conferences), evaluate macro- and microaggressions as a function of identity (i.e., gender, race, sexual orientation, religion, alter-ability, and their intersections), and systematically examine the consequences of such experiences in terms of professional productivity (i.e., publications, grants, mentoring, promotion, and tenure).

As social and life scientists, we apply an integrated awareness of the fundamental role of the local physical and cultural environment in individual and community outcomes. This awareness must also be applied to the way we conduct research. Those workplaces that are tolerant of alienating or harassing behavior, consistent with Red and Yellow contexts as described here, silence those targeted (H. Clarke 2014; Loi, Loh, and Hine 2015), while those with rules, enforcement, and leadership, as in Green contexts, are expected to enhance productivity and innovation. Leaders, including principal investigators of major fieldsites and those in positions of power in professional societies, can affect culture change by prioritizing equal opportunity and inclusion as explicit values for the field sciences (Pless and Maak 2004; Nishii 2013; Nishii and Mayer 2009). A value-engaged approach is essential for embracing codes of conduct, consequences for perpetrators, and protection for targets, bystanders, and whistleblowers (Stevens 1999). Commitment to these cultural mores by leadership, from the fieldsite to the university to the professional society, is central to supporting the professional development of academics at all career stages. As a tenured professor and

fieldsite director respondent concluded: “No matter what our experience is or was, or our mentor’s experience is or was, the student experiences are most important because they’re the ones who haven’t encountered some of the stuff at all. . . . And so if a student comes to you or someone says, ‘I feel uncomfortable,’ we have to get outside of our own experiences and protect them no matter what it might be.”

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NOTES

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