Safe fieldwork strategies for at-risk individuals, their supervisors and institutions

As a result of identity prejudice, certain individuals are more vulnerable to conflict and violence when they are in the field. It is paramount that all fieldworkers be informed of the risks some colleagues may face, so that they can define best practice together: here we recommend strategies to minimize risk for all individuals conducting fieldwork.

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Everyone deserves to conduct fieldwork as safely as possible; yet not all fieldworkers face the same risks going into the field. At-risk individuals include minority identities of the following: race/ethnicity, sexual orientation, disability, gender identity and/or religion. When individuals from these backgrounds enter unfamiliar communities in the course of fieldwork, they may be placed in an uncomfortable and potentially unsafe 'othered' position, and prejudice may manifest against them[1]. Both immediately and over the long term, prejudice-driven conflict can threaten a researcher's physical health and safety, up to and including their life. Additionally, such situations impact mental health, productivity and professional development.

Below we define risk, use examples to illustrate how at-risk identities have and continue to encounter conflict during fieldwork, and describe the need and responsibility of researchers and their supervisors to identify and mitigate risks inherent to fieldwork, before outlining strategies to achieve this.

The risk to a diverse scientific community

Given the value of a diverse scientific community (for example, see refs. [2–7]), the increased risk to certain populations in the field — and the actions needed to protect such individuals — must be addressed by the entire scientific community if we are to build and retain diversity in disciplines that require fieldwork. While many field-based disciplines are aware of the lack of diversity in their cohorts, there may be less awareness of the fact that the career advancement of minoritized researchers can be stunted or permanently derailed after a negative experience during fieldwork (for example, see refs. [1,8]).

Fig. 1 | Example situations experienced by at-risk individuals in the field. a, A Black ornithologist is approached by law enforcement. **b**, A Sikh entomologist experiences a hateful landscape. **c**, A bisexual ichthyologist is accosted by hate speech. **d**, A deaf botanist is verbally abused due to her disability. Illustration by Callie Rodgers Chappell.

Defining and assessing risk

Fieldwork in certain geographic areas and/or working alone has led many researchers to feel uncomfortable, frightened and/or threatened by local community members and/or their scientific colleagues (for example, see refs. [7,9–12]). Local community members may use individuals' identities as a biased marker of danger to the community, putting them at risk from law enforcement and vigilante behaviours. Researchers' feelings of discomfort in the field have been reaffirmed by the murders of Black, Indigenous and people of colour including Emmett Till, Tamir Rice, Ahmaud Arbery and Breonna Taylor; however, fieldwork

Table 1 | Additional resources for education

Author/organization	Resource description	Website
AdvanceGeo Partnership, Carleton College	Summary discussion of discrimination and bias in the field for geoscientists, with additional resources for promoting safe and inclusive fieldwork.	https://serc.carleton.edu/207372
Geological Society of America	Recordings of a seminar on the topic of how to confront barriers to inclusion in the geosciences: • Link 1 — Recordings of presentations • Link 2 — PDF of presentation slides	1. https://go.nature.com/2ZZs4JS 2. https://go.nature.com/2FTtZsr
NeurOnline	Guidelines for supervisors on how to mentor diverse graduate students[a].	https://go.nature.com/3mTw7RR
Rackham Graduate School, University of Michigan	Guidelines for supervisors on how to mentor all graduate students.	https://go.nature.com/3iX6OvH
Graduate Mentoring Network, University of Nebraska-Lincoln	Resources outlining mentoring needs for a diverse community organized by demographics (that is, age, experience, family needs, gender, race and so on).	https://go.nature.com/3609LI9
Anonymous	Blog with anonymous documentation of microaggressions. Examples are organized by demographic group (that is, race, gender and so on).	https://www.microaggressions.com/
Travis Blooms, The Wildlife Society	Challenges to inclusion and tolerance of LGBTQIA+ professionals in the biological sciences.	https://go.nature.com/3cswcai

[a]Adapted from University of Michigan's 'How to Mentor Graduate Students: A guide for Faculty'.

also presents increased risk for individuals in other demographics. For example, researchers who wear clothing denoting a minority religion or those whose gender identity, disability and/or sexual orientation are made visible can be at increased risk when conducting fieldwork. Several studies have documented the high incidence of harassment or misconduct that occurs in the field (for example, see ref. [9]). Based on lived experience, many at-risk individuals already consider how they will handle harassment or misconduct before they ever get into the field, but this is a burden that must be shared by their lab, departments and institutions as well. Labs, departments and institutions must address such risks by informing future fieldworkers of potential risks and discussing these with them, as well as making available resources and protocols for filing complaints and accessing training well before the risk presents itself (for example, see refs. [13,14]).

Conversations aimed at discussing potential risks rarely occur between researchers and their supervisors, especially in situations where supervisors may not be aware of the risk posed or understand the considerable impact of these threats on the researcher, their productivity and their professional development (for example, see refs. [14–16]). Quoted from Barker[13]:

"...faculty members of majority groups (such as White faculty in predominantly White institutions (PWI)) may not have an understanding of the 'educational and non-academic experiences' of ethnic minority graduate students or lack 'experience in working in diverse contexts.'"

This extends to any supervisor who does not share identity(ies) with those whom they supervise, and would have had to receive specific training on this subject matter in order to be aware of these potential risks.

Dispatches from the field

The following are examples of situations that at-risk researchers have experienced in the field: police have been called on them; a gun has been pulled on them (by law enforcement and/or local community members); hate symbols have been displayed at or near the field site; the field site is an area with a history of hate crimes against their identity (including 'sundown towns', in which all-white communities physically, or through threats of extreme violence, forced people of colour out of town by sundown (for example, ref. [17])); available housing has historically problematic connotations (for example, a former plantation where people were enslaved); service has been refused (for example, food or housing); slurs have been used or researchers verbally abused due to misunderstandings about a disability; undue monitoring or stalking by unknown and potentially aggressive individuals; sexual harassment and/or assault occurred (Fig. 1). Such traumatic situations are a routine expectation in the lives of at-risk researchers. The chance of these scenarios arising is exacerbated in field settings where researchers are alone, in an unfamiliar area with little-to-no institutional or peer support, or are with research team members who may be uninformed, unaware or not trusted. In these situations, many at-risk researchers actively modify their behaviour in an attempt to avoid the kinds of situations described above. However, doing so is mentally draining, with clear downstream effects on their ability to conduct research (for example, see refs. [7,10,14]).

Mitigating risk

The isolating and severe burden of fieldwork risks to minoritized individuals means that supervisors bear a responsibility to educate themselves on the differential risks posed to their students and junior colleagues in the field. When learning of risks and the realized potential for negative experiences in the field, the supervisor should work with at-risk researchers to develop strategies and practices for mitigation in ongoing and future research environments. Designing best practices for safety in the field for at-risk researchers will inform all team members and supervisors of ways to promote safe research, maximize productivity and engender a more inclusive culture in their community. This means asking who is at heightened risk, including but not limited to those expressing visible signs of their race/ethnicity, disability, sexual orientation, gender identity/expression (for example, femme-identifying, transgender, non-binary) and/or religion (for example, Jewish, Muslim and Sikh). Importantly, the condition of being 'at-risk' is fluid with respect to fieldwork and extends to any identity that is viewed as different from the local community in which the research is

Box 1 | Strategies for researchers, supervisors and institutions to minimize risk

A. What can researchers do to minimize risk to themselves on a field site?*

1. Talk with colleagues and supervisors about the risks, preparations to minimize risk, and reporting mechanisms. Be aware that the conversation will likely be difficult and will require mental and emotional readiness by both parties. If a supervisor is dismissive of this conversation, individuals should be aware that they can and should reach out to additional mentors, institutional or industry advocates (for example, an ombudsman, Equal Employment Opportunity officer, Diversity and Inclusion administrators, Student Disability Services or other trusted professionals to have this conversation).
2. The scale of risk can depend on the country in which the fieldwork is conducted (for example, elements of identity such as sexual orientation may be criminalized). At minimum, be aware of and abide by any international laws and customs in addition to local foreign laws, current political climate, actual degree of law enforcement, and mandate a conversation between researcher and supervisor to establish an emergency contingency plan.
3. Contact others (especially those who share an at-risk identity) that have previously used a field site at a location where there is a history of risk. It is recommended that researchers document all known cases of risk at that location.
4. Take advantage of training opportunities to increase field safety and promote awareness (for example, self-defence courses, first aid, safety aids and cultural history courses about the location of the field site).
5. Know who manages the field site(s) and inform the field managers when and where you will be at those locations.
6. Introduce yourself to the neighbours surrounding the field property, or leave a short note informing neighbours about research being conducted at nearby locations and who will be conducting the research. It is advisable to also include contact information, preferably information that clearly demonstrates affiliation with the research institution to provide additional credibility.
7. Engage in fieldwork with another person, when possible. When this is not possible, have a point of contact (preferably the supervisor) who is aware of your whereabouts and expected schedule on a given day. A written communication plan that gives notice of field plans is another way to maintain communication with a point of contact.
8. Always carry credentials in case someone challenges why you are at the field site. These include photo identification (driver's license, passports, institution identification) and relevant permits. Any additional form of identification that clearly demonstrates affiliation with the research institution can also be helpful (that is, university apparel, institution bumper stickers or car magnets, and so on).
9. If at any time you feel unsafe, you should contact your supervisor to discuss ways to modify the project. While supervisors may work closely with researchers, they often do so outside of the field site, and therefore may not know of the risks and dangers encountered therein. It is paramount that at-risk individuals advocate for themselves.

*If you are establishing your own field site and/or are supervising others, review sections B and C for additional strategies.

B. In the event that an at-risk individual's supervisor is unwilling to help minimize risk, the individual should leverage available resources at their institution:

1. Create a support group for (1) reporting and documenting risk and (2) gathering witnesses to help showcase the level of threat. The support group might range from peers, a counsellor, to established institutional services.
2. Report the risk and the supervisor, following the institution's established reporting policy or office (see section A for examples). This report can include documentation of the risk (for example, recordings of a verbal altercation, written correspondence to an inactive supervisor, photo documentation of a slur and so on).
3. Reach out to the departmental officer in charge of reporting situations to higher echelons of administration who would provide administrative and legal support for the researcher. There are laws in place to maintain the safety of researchers.

C. What can supervisors do to support at-risk individuals?

1. Self-educate on the experience of your team member's identity, and the corresponding risk that they may encounter in the field. This does not involve asking researchers to relive trauma surrounding their identity as a source of education. Rather, use available resources to self-educate. First-person accounts and resource compilations are available (see Table 1). Furthermore, self-educate on the politics, demographics and culture of the areas surrounding established field site(s), in order to be fully aware of potential risks.
2. Prior to fieldwork, contact relevant institutional offices for risk management on how to best manage risk in the field and identify resources for researchers to identify the social landscape in which the field site(s) is(are) situated and identify potential risks.
3. Create a field risk management plan that discusses risk at established field sites. This document should detail potential risks and identify mitigation(s) for that risk. This document should also act as a living document for recording safety incidents. Copies of these should be carried with fieldworkers on their person as well as left in the workplace or lab.
4. Provide materials to clearly identify researchers and their purpose (for example, signs for vehicles and field sites, safety vests and so on). These items should be provided for the researcher so that their use is easily implemented.
5. Have a conversation with all research team members on the risks and preparations to minimize risk. This can include a statement that certain demographics may be at higher risk, and that the supervisor is available to discuss with any researcher about concerns and proactive measures. Educational resources, such as this document, should be made available to all researchers, who can then self-select to engage in a conversation about safety issues surrounding their specific identity(ies).
6. Create a time and space to talk to research team members specifically about fieldwork safety concerns in advance of the field season, and touch base with them throughout the season

Box 1 | Strategies for researchers, supervisors and institutions to minimize risk

to address new concerns. As a reminder, this is an uncomfortable reality and merits the need to establish a space and time for both parties (researcher and supervisor) to be ready and willing to engage in this important discussion.

7. Even after education, supervisors that do not share the same identity as their researchers will be unaware of all potential risks to researchers. If researchers bring up potential or experienced risks, validate their experiences and assist in modifying the project so that they can safely continue conducting research.
8. The scale of risk can increase dramatically in an international field site. At minimum, be aware of and abide by any international laws and customs in addition to local foreign laws, current political situations, actual degree of law enforcement, and mandate a conversation with the researcher. Furthermore, this conversation should include allies in the field — collaborators and/or supervisors at the international field site — to discuss any safety concerns that the researcher may not be aware of.
9. At established field sites, introduce researchers (via e-mail or in-person) to the manager of those locations, if they exist. If there are multiple managers, researchers should be introduced to each manager to minimize any miscommunication that could lead to increased risk.
10. When possible, show new researchers established field locations, teach them about the specific concerns of that field location, and inform them of the resources in accordance with established safety plans. The resources should have contact information about field site personnel relevant to research and safety (for example, contact information of the local police department).
11. Assist researchers in establishing safe housing before arriving at the field location. A safe and secure housing location includes the following: researchers are able to secure food, travel safely to and from field sites, and there are supportive points of contact in the local community.
12. Review and agree upon fieldwork and safety plans with the researcher before any fieldwork begins.
13. Actively engage with researchers on how to reorganize fieldwork practices if and when there are restrictions on movement; for example, local ordinances limiting activity (that is, curfew, stay-at-home orders and so on).

D. What can departments and institutions do to support at-risk individuals?

1. Make a general field safety, harassment training and first aid course available and mandatory for all researchers to attend in the institution or department.
2. Make a list of resources available about diversity in the sciences, barriers to entry in the sciences and safety concerns (see Table 1 as well as the list of references).
3. Regularly re-evaluate all current department and institutional practices to remove barriers to inclusion in safety practices. Develop a proactive plan to alter detrimental (anti-inclusion and equity) practices and document the process to increase transparency of decision-making.
4. Inform and advise supervisors and research groups about the benefits of acting responsibly and with care, as well as legal and social ramifications if they fail to invest in researcher safety during university-sanctioned fieldwork.
5. Provide training to supervisors on how to be an effective mentor to diverse individuals. This training should provide clear lines of communication for anyone conducting fieldwork, regardless of the researcher's institutional affiliation (for example, a visiting researcher working with faculty and field sites managed by the institution).
6. Ensure field course locations and housing are appropriate, safe and equitable for all identities. Solicit regular, anonymized feedback from field researchers to determine the climate and safety of field sites and accommodations, and engage supervisors in responding to this feedback.
7. Ensure that all department- or institution-managed field sites are clearly labelled as a part of the institution. On this signage, include acceptable activities allowed at such locations (for example, birdwatching, dog walking, no public access).
8. Collate information on all active or newly established field sites throughout the year and provide this information to relevant police departments. Due to the sheer volume of field projects occurring at a single time, this cannot feasibly be accomplished by supervisors and researchers. Supervisors or individual researchers should only have to contact specific law enforcement if the field site(s) was(were) not a part of this initial package.
9. Supply an official letter of support for researchers doing fieldwork with contact information. This provides additional credibility to the researcher, if and when they are approached and challenged.

being conducted. In some cases, fieldwork presents a situation where a majority identity at their home institution can be the minority identity at the field site, whether nearby or international. Supervisors, colleagues and students must also interrogate where and when risk is likely to occur: an individual could be at-risk whenever someone perceives them as different in the location where they conduct research. Given the variety of places that at-risk situations can occur, both at home, in country or abroad, researchers and supervisors must work under the expectation that prejudice can arise in any situation.

Strategies for researchers, supervisors, and institutions to minimize risk

Here we provide a list of actions to minimize risk and danger while in the field compiled from researchers, supervisors and institutional authorities from numerous affiliations (Box 1). These strategies are used to augment basic safety best practices. Furthermore, the actions can be used in concert with each other and are flexible with regards to the field site and the risk level to the researcher. These strategies are not comprehensive; rather, they can be tailored to a researcher's situation.

We acknowledge that it is an unfair burden that at-risk populations must take additional precautions to protect themselves. We therefore encourage supervisors, departments and institutions to collectively work to minimize these harms by: (1) meeting with all trainees to discuss these guidelines, and maintaining the accessibility of these guidelines (Box 1) and additional resources (Table 1); (2) fostering a department-wide discussion on safety during fieldwork for all researchers; (3) urging supervisors to create and integrate contextualized safety guidelines

for researchers in lab, departmental and institutional resources.

A hold harmless recommendation for all

Topics related to identity are inherently difficult to broach, and may involve serious legal components. For example, many supervisors have been trained to avoid references to a researcher's identity and to ensure that all researchers they supervise are treated equally regardless of their identities. Many institutions codify this practice in ways that conflict with the goals outlined in the previous sentence, as engaging in dialogue with at-risk individuals is viewed as a form of targeting or negative bias. In a perfect world, all individuals would be aware of these risks and take appropriate actions to mitigate them and support individuals at heightened risk. In reality, these topics will likely often arise just as an at-risk individual is preparing to engage in fieldwork, or even during the course of fieldwork. We therefore strongly encourage all relevant individuals and institutions to 'hold harmless' any good-faith effort to use this document as a framework for engaging in a dialogue about these core issues of safety and inclusion. Specifically, we recommend that it should never be considered a form of bias or discrimination for a supervisor to offer a discussion on these topics to any individual that they supervise. The researcher or supervisee receiving that offer should have the full discretion and agency to pursue it further, or not. Simply sharing this document is one potential means to make such an offer in a supportive and non-coercive way, and aligns with the goals we have outlined towards making fieldwork safe, equitable and fruitful for all. ❐

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