Ethical considerations when conservation research involves people

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Abstract

Social science is becoming increasingly important in conservation, with more studies involving methodologies that collect data from and about people. Conservation science is a normative and applied discipline designed to support and inform management and practice. Poor research practice risks harming participants and, researchers, and can leave negative legacies. Often, those at the forefront of field-based research are early-career researchers, many of whom enter their first research experience ill-prepared for the ethical conundrums they may face. We drew on our own experiences as early-career researchers to illuminate how ethical challenges arise during conservation research that involves human participants.

Specifically, we discuss ethical review procedures, conflicts of values, and power relations, and provide broad recommendations on how to navigate ethical challenges when they arise during research. In particular, we recommend that researchers engage with the process of reflexivity to help navigate ethical challenges when they arise during research, encourage greater engagement with ethical review processes and highlight the pressing need to develop ethical guidelines for conservation research that involves human participants.

Such guidelines must be accompanied by the integration of rigorous ethical training into conservation education. We believe our experiences are not uncommon and can be avoided and hope to spark discussion to contribute to a more socially just conservation.

Introduction

Many environmental changes, including biodiversity loss, are anthropogenic (Schultz 2011; Tilman et al. 2017). Thus, conservationists increasingly draw on the social sciences to better understand these changes and improve outcomes in conservation policy and practice (Mascia et al. 2003; St John et al. 2010; Sandbrook et al. 2013). Since its origins, conservation science has been a disciplinarily and methodologically complex field that incorporated elements of philosophy and the social sciences (Soule 1985), yet traditionally the field is rooted in natural sciences and dominated by biological and ecological epistemologies (Bennett et al. 2017). The recent shift toward interdisciplinarity represents a substantial refocus. However, the formal training received by conservation scientists remains largely unchanged (Fox et al. 2006; Bennett et al. 2016). Because of fundamental differences in the way natural and social science research is conducted, conservationists can find themselves ill-prepared for the methodological and ethical challenges that arise during social research (St John et al. 2014, 2016).

Much conservation research that involves collecting data from people is conducted by nonlocal researchers in social and cultural contexts that differ significantly from their own (Lunn 2014; Kiik 2019). Such contexts may pose a range of ethical dilemmas (Minteer & Collins 2005), particularly when researchers experience situations that cannot be easily resolved using their own cultural norms (de Laine 2000). As a normative and applied discipline, conservation research often aims to support and inform conservation practice and is undertaken by a range of actors, each guided by different agendas and values, but with a shared objective of conserving biodiversity. Yet, this objective may not be perceived or experienced positively by others. Failure to recognize this may compromise the well-being of participants, researchers, and success of the research (Palmer et al. 2014).

In some countries with settler or colonial histories, conservation may still be perceived as a colonial imposition (Kiik 2019). Conservationists have been criticized for overlooking local techniques for sustaining biodiversity (Lewis 2016) and for poor partnership with stakeholders. Conservation researchers may mistakenly see themselves as neutral parties shielded by the objectivity of science (Redpath et al. 2013). In reality they are stakeholders with interests and goals that may conflict with those of other actors (e.g. Fairhead et al. 2012; Lewis 2016). Failing to acknowledge this, risks reinforcing harmful power dynamics, perpetuating historical injustices, and increasing tension between stakeholders (Peluso 1993). As a sector, conservation is rightly experiencing growing scrutiny; actors are increasingly asked to ethically justify their actions (Robinson 2011; Newing & Perram 2019).

Reflecting its roots in the natural sciences, research ethics in conservation has generally focused on the treatment of animal, rather than on the ethics of research involving people (Minteer & Collins 2005; Wallach et all 2018; Hayward et al. 2019). Yet, researchers have moral, pragmatic, and legal obligations to protect participants from harm and should always consider the potential effects of their activities during and after research (Aluwihare-Samaranayake 2012). Usually, ethical review boards (ERBs) assess the ethical robustness of academic research (Speiglman & Spear 2008). However, not all conservation researchers have access to ERBs (St John et al. 2016), and not all ERBs are well placed to assess the ethical issues specific to conservation research. Where guidance is inadequate, inappropriate, or nonexistent, human research ethics risks falling through "institutional and scholarly cracks" (Minteer & Collins 2005). Despite calls for a stronger focus on interdisciplinary ethical inquiry to support conservationists in their decision-making (Minteer & Collins 2005), little has changed, and safeguards implemented to protect human participants remain

underreported in conservation publications (Ibbett & Brittain 2019).

We are early-career researchers and gather data from and about people. We argue it is not unusual for early-career conservation researchers to find their protocols reviewed by and research supervised by those without recent field experience, experience in social research, or experience in relevant cultural contexts. Unlike other subjects that involve human-focused research (e.g., anthropology, human geography), in-depth ethics training is rarely included in conservation curricula (Saltz et al. 2018). It is morally right to consider ethics in one's research, regardless of the benefits for conservation. Yet, we believe the deficit in training, guidance, and reflection that permeates conservation poorly equips researchers to work with human subjects.

In July 2018, 11 early-career conservation researchers from different research institutions within the first eight years of their post-graduate careers convened for a workshop. Discussions were facilitated by J.L., an anthropologist. Participants had a range of disciplinary backgrounds from the natural and social sciences and researched topics such as conservation conflict, behavior change, illegal resource use, and local indigenous knowledge. Participants had field experience in Brazil, Cambodia, Cameroon, the Democratic Republic of Congo, Italy, Madagascar, Russia, and Tanzania.

Prior to the workshop, we anonymously gathered case studies of ethical dilemmas experienced by workshop participants and members of the Interdisciplinary Centre for Conservation Science at University of Oxford. We used these case studies to generate discussion regarding the ethical challenges commonly encountered during conservation research involving people (Table 1). We documented our discussions, explain why this topic

requires urgent consideration, and outline measures to improve conservation research that involves human participants. We exemplify why these challenges demand our consideration and outline the measures we believe are urgently required to improve conservation research that involves human participants. Multiple domains of ethics exist and ethical debate extends beyond the issues discussed here (Minter & Collins 2005). Moreover, academic research in particular represents only a small part of conservation activities and conservation as a whole is rife with ethical challenges. We restricted our discussion to human research ethics only because this represents our expertise and because we believe this topic requires urgent attention from conservationists. While we focus solely on social research methods, our discussion is broadly applicable to any researcher who uses methods that interact -with people. For example, our discussions also apply to those who capture images of people (accidentally or intentionally) via camera traps.

Institutional Ethical Responsibilities

Today, gatekeepers of research practice, including research institutions, donors, academic societies, and journals, increasingly mandate the use of ERBs for all research involving human subjects (Speiglman & Spear 2008). Primarily embedded in universities and large research institutions, ERB members are typically researchers from a range of disciplines. Their principal task is to ensure research 'protect[s] the dignity, rights and welfare of research participants' (Dyer & Demeritt 2009; ESRC 2015). Researchers submit protocols to ERBs prior to commencing research, which are assessed to ensure they conform to the institutions' ethical standards. Emphasis of an ERB is on the behavior of researchers toward research participants and revolves around principles such as informed consent, do no harm (whereby researchers protect 'the safety, dignity or privacy of the people with whom they work' [AAA 2009]), and rights to privacy, anonymity, and confidentiality (Vanclay et al. 2013).

Scrutiny of research protocols by appropriately qualified experts is a vital safeguard and can be a positive learning experience. However, there is a tendency for researchers to poorly engage with ERBs. Partly, this may be because they perceive the procedures as bureaucratic box-ticking exercises designed to protect research institutions rather than research participants (Lunn 2014). As a result, researchers may delegate their ethical responsibilities to ERBs, rather than critically evaluate the ethical implications of their research themselves (Valentine 2005). Poor engagement is also due to ERBs often granting approval only to specific protocols that may be inappropriate to the research context.

Gaining informed consent is a core requirement of the ethical review process (Wiles 2013) and represents the point at which a research contract is formed between the researcher and the participant. The researcher explains the rules the participant can expect the researcher to abide by (e.g., confidentiality, anonymity) in exchange for their participation in the research (Dyer & Demeritt 2009). Often ERBs stipulate strict procedures for obtaining consent, including delivering specifically worded participant-information statements that contain institutional contact details in case of grievances. However, there are different ways of gaining consent and different cultural understandings of consent (Lewis et al. 2010). Emphasis on individual consent may be inappropriate in some cultures (Dyer & Demeritt 2009). In others, gaining permission from a local authority may be considered appropriate, but it denies individuals the freedom to withhold consent. Some ERBs and journals still require written consent, yet high illiteracy can render written consent inappropriate and contradict promises of anonymity. Furthermore, participants often cannot make contact due to language or logistical barriers. The ERBs frame consent as a one-off process. We argue consent should be viewed as an ongoing negotiation that can end if one party does not

maintain the other's trust or if circumstances change (Lewis et al. 2010).

Framing ERB procedures as a valuable ongoing reflective process that promotes the well-being of participants and researchers while improving research outcomes may prevent ethics from being perceived as an arduous task to "get over with" (Guillemin & Gillam 2004). Partly, this requires a concerted effort to integrate ethics training and an understanding of what the research contract with participants entails into the curricula of academic conservation programs. This should also address applicable human rights laws, which are currently poorly understood (Newing & Perram 2019). Beyond academia, organizations carrying out conservation research should also prioritize regular ethics training and opportunities for reflection for staff, students, and volunteers, alongside their other relevant training programs (e.g., health and safety, data protection).

Developing and implementing effective formal ethical review processes is a critical step toward embedding ethics into conservation research practice. However, ERBs require expertise and resources often available only to large research institutions. Conservation research is frequently conducted by NGOs and people from countries or institutions without the resources or formal structures to access ERBs. Funder and publisher requirements for formal ethical approval can consequently exclude them from funding and publication opportunities (St John et al. 2016). One solution may be to form an open-access, peer-led ethical review panel, which operates similarly to the journal peer-review process, to provide access to adequate ethical review (Ibbett & Brittain 2019).

Conflicts of values

Values are the beliefs and ideals that inform identities and moral integrity and form the

"natural standards and subconscious biases against which we measure the actions and words of others" (Payne & Payne 2004). Researchers must acknowledge that value-based judgments are at the root of all research and conservation activities (Wilhere et al. 2012). Researchers may experience conflicts between their values and their responsibilities under their research contract with participants, as well as with other institutions, collaborators, funders, and other actors. If unprepared for these conflicts, researchers risk making unethical decisions that can cause harm.

Researcher values can conflict with the prescriptions of ERBs, and the implicit or explicit commitments made in one's research contract with participants. For example, participants may reveal details of illegal activities if they feel assured by the promises of confidentiality and anonymity. Yet, obtaining this information may raise ethical questions for the researcher if the information provided during the research conflicts with their moral values. Further frustration can arise if the researcher has contacts with people in positions of power (e.g., wildlife authorities, state officials, local leaders) with whom sharing information may help prevent future occurrences. The ethical conundrum is exacerbated by the time-limited nature of this issue. Failure to act quickly may result in dire consequences, for example, species extirpation or irreversible habitat loss.

In such instances, researchers must balance their moral values against their contractual responsibilities and obligations to protect participants. Consent procedures provide clear instructions that knowledge obtained should not be used to harm those who provided it. Disclosing such information would break the agreement to 'do no harm' and the researcher's professional ethical obligations. One way of navigating such conundrums is to deconstruct 'content' (e.g. the specific details of an activity, such as the place or persons involved) from

'structure' (the sociopolitical factors that determine how and why such activities occur) (Von Essen et al. 2014). For example, rather than divulging the occurrence of specific instances of illegal activity (e.g., identity of a poacher), it may be more beneficial to focus research on uncovering the forces underpinning it (e.g., conditions enabling poachers to poach undetected). It takes time, however, to propose, fund, and conduct research, often at the risk of ecological damage continuing unabated.

During research, one frequently witnesses things that challenge one's moral values, but that are unrelated to the research. For example, a local authority figure, who has offered support and protection, may harm others. Or, one may view the treatment of women in the culture in which one is work as demeaning. The options available under such circumstances (e.g., do nothing or speak out and risk repercussions) can seem equally undesirable and unethical. Uncertainty about the best course of action to take can result in significant ethical dilemma, even emotional trauma. Often there is no clear solution - the research contract does not prevent the researcher from intervening if it may alleviate suffering, yet this may affect future research relationships. Researchers must rely on their intuition and training to appropriately manage the situation. Seeking advice from supervisors or trusted neutral parties can be helpful.

Typically, conservation researchers collaborate with on-the-ground partners who provide logistical, financial, political, and moral support. However, these relationships can be ethically challenging to navigate; the aims of partners may differ from those of researchers. For example, a partner's primary interests may lie in conducting investigative research leading to convictions for illegal activity, actions typically beyond the scope of academic research. Research findings may not align with partners' prior assumptions, funding, or

policies or generate evidence that reflects badly on their practices (e.g. Poudyal et al. 2018). Such findings are often vital to improve conservation outcomes, and withholding such findings could be considered unethical. Yet if shared inconsiderately, findings could cause embarrassment, endanger reputations, undermine working relationships, and create hostility toward future researchers. Expectations between researchers and collaborators (e.g., NGOs and government departments) should be fully agreed in advance. When in place, memorandums of understanding usually focus on intellectual property, financial management, and reporting. However, we argue understanding each other's ethical positions on such issues and the implications for research outcomes should also become a core component of these agreements.

There are no simple solutions to many of the ethical dilemmas encountered during research. Although adhering to concepts of informed consent, 'do no harm' , and the research contract reminds one of one's professional obligations, these concepts can be difficult to operationalize and do not necessarily identify the most ethical action, if any, to take. Some institutions offer ethics training to researchers, although this is optional rather than mandatory or focused on the ERB process rather than ethical decision-making during research. Researchers should never undertake field research without undergoing basic safety and first-aid training. Failure to do so would be a dereliction of duty at the institutional level. We argue the same mind-set is required for ethics to avoid placing researchers at the risk of imposing and suffering psychological harm. Such training should promote reflexive thinking, whereby researchers engage in a process of critical reflection throughout their research. Reflexive thinking can allow researchers to recognise the effect the researcher has on the research (prospective reflexivity) and consider the effect of the research on the researcher (retrospective reflexivity) (Attia & Edge, 2017).

Consciously identifying one's moral values may be challenging. Researchers should not consider their ethical positions as individuals nor how their positions affect the way they behave and interpret the behavior of others. We advocate for training that guides researchers through the process of recognizing and identifying different values. We believe this will lead to better assessments of how knowledge is both generated and understood and enhance researchers' consciousness about different ethical positions, alongside their own (Guillemin & Gillam 2004). Although researchers cannot predict or prevent ethical issues from arising, training can better equip conservationists with skills to negotiate ethical dilemmas when they arise and thus reduce the risk of psychological, emotional, and physical stress, as well as researchers experiencing burn out (Perry 2011).

Power dynamics

Researcher and participant relations are central to how conservation knowledge is produced and legitimized. Power is the capacity of actors to affect the practices and ideas of others (Ribot & Peluso 2003). It is observed most clearly where conflicts of interest occur (Lukes 2005) and is relational and relative. It occurs between actors and varies between actors; some actors have more or less power than others. As such, power helps determine how conflicts are resolved.

Conservation researchers may exercise power over participants through their research questions and methods, recruitment of participants, and policy-relevant recommendations (Karnieli-Miller et al. 2009). Thus, conservation research can create new or reinforce existing power dynamics either directly or via the implementation of research recommendations (Sultana 2007; Kiik 2019). However, outcomes often result from a process of negotiation, in which different actors exercise power, rather than fulfilment of the will of one actor (Svarstad

2018). Conservation researchers may have substantial power over research participants and their communities and be relatively powerless in other scenarios (Sandbrook 2018).

Researchers are accountable to a range of stakeholders whose interests are guided by their values and principles (Redpath et al. 2015). Thus, researchers may be subject to the power of others and become ethically compromised if positioned between competing interests. For example, governments may insist their staff accompany a researcher. Yet, government presence may undermine assurances of anonymity and confidentiality, provoke distrust, and jeopardize data quality.

When research agendas do not align with priorities of local organizations or communities, research may be imposed on communities without consultation, which is unethical and rarely secures full cooperation. Research that fails to serve local interests can cause tension between researchers and participants. This is especially problematic when disempowered stakeholders are unable to resist conservation policies (Brockington et al. 2006). To reduce power imbalances, researchers should consider participants as active agents in the process and recognize their contribution to knowledge generation in the research contract. Full-partnership approaches that promote communities' participation in research design, data collection, and result dissemination (Karnieli-Miller et al. 2009) aim to achieve this while increasing researchers' accountability to participants.

Conservation research can create positive power dynamics, whereby the researcher becomes a valuable external ally who can goes beyond do no harm and gives back to participants, who may have less power than other actors. However, recruiting and working with research participants can create new or reinforce existing, potentially negative, power dynamics in

communities. Often, mediators between researchers and participants hold positions of power. Working with these individuals potentially endows them with new knowledge, networks, or resources, reinforcing their advantage over others in the community, especially if research involves sensitive topics. Their presence may also affect data quality because participants may feel uncomfortable and unable to speak openly, particularly if they are critical of local elites.

Finally, when collecting data from human participants, one must recognize that power dynamics apply to conservation science itself (Sandbrook 2018). Conservation shapes how people relate to their social and ecological environments. With global support, conservation researchers can leverage significant financial, political, and social resources, which often reinforce and legitimize the international conservation agenda (Sandbrook 2018). During research, participants may hear different stories about the power of conservation organizations and may have previously experienced harm due to ill-considered conservation actions. They and others may be distrustful of engaging with conservation researchers. In contrast, early-career researchers may feel relatively powerless to have meaningful ecological, social, and scientific impact yet be situated in, and be the beneficiaries of, the political and economic systems being studied (Sundberg 2015). Reflecting on how one is positioned at all scales (from global to study site) should improve understanding of how to use power positively, rather than passively. We encourage researchers to consider their positionality, namely, how their race, class, age, gender, and geographic characteristics determine their research interests and outputs (Neely & Nguse 2015). This applies throughout researcher engagement in conservation discourse, from presenting at conferences, writing articles, to engaging with other stakeholders.

Legacy of research

No action is without reaction. Thus, what researchers do can significantly affect participant well-being and the success of future conservation. Researchers have a responsibility to consider how their work affects participants and the wider conservation movement at all levels. This responsibility applies to the framing of the research contract with participants, interpretation, and publication and dissemination of results. Failure to consider the narratives adopted or how findings are framed, for example, can lead to the detrimental portrayal of the people who helped facilitate research and have long-lasting ramifications (St John et al. 2016).

One particular challenge is management of participants' expectations. Conservation has a reputation of negative extraction (knowledge is collected, but not shared with those who provided it) (Barber et al. 2014). This extraction deprives participants of the opportunity to fully participate and erodes the quality of research because findings remain unvalidated by those who know the study area best. Participants and their communities may become unwilling to engage in future research. Researchers should always incorporate time and funding for feedback in proposals and in contractual agreements with participants. Participants may provide information believing it will result in economic development or immediate positive change. Their expectation that researchers can greatly improve their lives may often be unrealistic. For example, we have been asked by community members to help secure visas and organize installation of electricity distribution networks. Even if extensive efforts are made to inform participants that research will not provide instant or direct benefits, determining whether this has been understood and accepted can be challenging (Cronin-Furman & Lake 2018). Yet, failure to properly manage participants' expectations leads to disappointment, disenfranchisement, and even antagonism.

Researchers also have a responsibility to those who assist them (e.g. assistants, translators, drivers, community contacts). These individuals play a critical role in the success of research. Researchers may assume their responsibilities to team members cease at the end of data collection, but team members may be exposed to risk or experience conflicts of interest. Such risks can be compounded by team members' subordinate position, which may result in acceptance of harmful decisions and practices (Cronin-Furman & Lake 2018). Team members are commonly employed informally or on temporary contracts designed to meet the needs of research, rather than offer employees protection (e.g., health insurance, social security). However, in contexts where much employment is temporary or cash based, formal employment contracts may be inappropriate, in which case it may be better to work with team members to devise adequate and culturally appropriate solutions that guarantee proper remuneration.

Despite their essential role in research, institutional protocols do not adequately protect research team members. In our experience, ERBs rarely consider the well-being of research team members and focus instead on participants, whereas health and safety assessments focus on the research institution's employees. Researchers should ensure risk assessments and research protocols address the ethical, physical, and mental implications for all team members, including seeking free, prior, and informed consent from team members in a locally relevant format. After research completion, the contribution of each individual to the research output should be recognized; coauthorship is an important component of epistemic justice (Sarna-Wojcicki et al. 2017). These matters should be discussed fairly, openly, and, where appropriate, be formalized prior to research to ensure contributions are acknowledged and wishes respected.

Future perspectives

Human research ethics are vital for the applied and normative discipline of conservation science (Kareiva & Marvier 2012). However, ethical training and practice have not kept pace with the increasing prominence of research that involves human participants (Saltz et al. 2018). Conservation scientists have moral, pragmatic, and legal obligations to act ethically and avoid harming others. However, it takes time, effort, and money to follow ethical processes and requires researchers to engage with bureaucratic processes and attend training. Ethical standards constrain the types of research possible and can limit access to groups, areas, methods, and questions. Moreover, thinking reflexively and acting ethically is challenging.

For many, the ERB process represents the first (and sometimes only) point at which ethical issues are considered. As ERB approval becomes increasingly compulsory, we argue for a change in how conservation researchers engage with the ethical review process. First, be aware of the limits of the ethical procedures prescribed by ERBs and the need to go beyond them in reflexive practice. Second, take responsibility for engaging with and improving the ERB processes. Conservation researchers with experience in the social sciences need to sit on ERB review boards and assist with ethical review applications where ethical review processes are insufficient. Third, strive to achieve a deeper understanding of the ethical issues one may encounter during research, for example, by exploring the history and sociopolitical context of study sites and evaluating the effect of previous conservation efforts on participant receptivity toward researchers.

Academic journals could play a key role in incentivizing researchers to properly engage in

ethical review processes by requiring ethical approval and reporting (St John et al. 2016; Ibbett & Brittain 2019); however, this must be so as not to exclude researchers without access to ERBs. Ethics statement requirements in funding applications and reports to funders may similarly incentivize nonacademic conservation researchers. Ethical reporting could also be modified to encourage greater reflection by researchers. There is a move within conservation to acknowledge, reflect on, and learn from failure (Catalano et al. 2017). Publishing conservation researcher experiences with ethical issues encountered(?) or their reflections on how their positionality and values affected their interpretation of data, for example, would allow others to learn from previous experiences and encourage an open dialogue on ethics, paving the way for further refinement of ethical practice. However, a supportive culture is needed to enable early-career researchers to participate without jeopardizing their careers.

Few conservation-specific resources exist to guide ethical human research practice, and researchers resort to resources from other disciplines. Although conservation research has many similarities with other disciplines, its action-driven nature means some problems are inadequately addressed. For example, guidelines in psychology describe how to manage human relations, yet rarely discuss issues related to power, except when dealing with vulnerable groups, such as children (APA 2017). Further, while anthropology students receive ethical training, it emphasizes reflexivity and cultivation of ethical capacity, rather than following a set of prescriptive guidelines (AAA 2012), meaning they cannot be effectively adopted without training, as is sometimes advised (e.g. Woodhouse et al. 2016). A set of ethical guidelines for conservation researchers designed to complement formal ethical processes would alert researchers to the problems they might encounter and act as a blueprint for improved ethical practice. This could draw on similar documents produced in other disciplines, but must address the unique problems in conservation. Integration of rigorous

ethical training into conservation education is essential for these guidelines to be adopted successfully.

This article does not represent a comprehensive discussion of all ethical conundrums that occur when conducting conservation research with human participants. We focused our attention on limited examples from our own experiences and did not consider other important ethical issues, such as reimbursing participants for their contributions and moving beyond doing no harm to generating reciprocal benefits for participants. We do not suggest conservation researchers are intentionally acting unethically or are breaking ethical protocols. However, we believe conservation must move beyond applying standards set by ERBs toward a more holistic, ethical research practice.

Early-career conservation scientists, are often on the frontline and begin their careers with field-based research, often entering sites with differing cultures, complex histories, and possibly social conflict over local environments. We have experienced how ethical shortfalls can evolve to negatively affect research participants, collaborators, ourselves, and conservation outcomes and have contended with the negative legacies left by conservationists before us. We believe our experiences are not uncommon and can be avoided. We hope to ensure this is not the legacy we leave and that our essay sparks discussion and contributes to a more socially just conservation.

Literature Cited

Aluwihare-Samaranayake D. 2012. Ethics in qualitative research: A view of the participants' and researchers' world from a critical standpoint. International Journal of Qualitative Methods **11**:64–81.

American Anthropological Association (AAA). 2009. Code of ethics. AAA, Arlington, VA . Available from http://s3.amazonaws.com/rdcms-aaa/files/production/public/FileDownloads/pdfs/issues/policy-advocacy/upload/AAA-Ethics-Code-2009.pdf (accessed June 2018).

American Psychological Association. 2017. Ethical principles of psychologists and code of conduct. Available from https://www.apa.org/images/ethics-code-2017_tcm7-218783.pdf (accessed June 2018).

Attia M & Edge J 2017. Be(com)ing a reflexive researcher: a developmental approach to research methodology. Open Review of Educational Research, **4:** 33-45.

Barber PH et al. 2014 Advancing biodiversity research in developing countries: the need for changing paradigms. Bulletin of Marine Science, **90**: 187-210

Bennett NJ, Roth R, Klain SC et al. 2016. Mainstreaming the social sciences in conservation. Conservation Biology **31**:56–66.

Bennett NJ, Roth R, Klain SC et al. 2017. Conservation social science: Understanding and integrating human dimensions to improve conservation. Biological Conservation **205**:93–108.

Brockington D, Igoe J, Schmidt-Soltau K. 2006. Conservation, human rights, and poverty reduction. Conservation Biology **20**:250–252.

Carlson R V., Boyd KM, Webb DJ. 2004. The revision of the Declaration of Helsinki: past, present and future. T British Journal of Clinical Pharmacology **57**:695–713.

Catalano AS, Redford K, Margoluis R, Knight AT. 2017. Black swans, cognition and the power of learning from failure. Conservation Biology. **32**:584-596.

Cronin-Furman K, Lake M. 2018. Ethics Abroad: Fieldwork in Fragile and Violent Contexts. PS - Political Science and Politics **51**:607–614.

de Laine M. 2000. Ethical dilemmas: the demands and expectations of various audiences. Pages 120–145 Fieldwork, participation, and practice: Ethics and Dilemmas in qualitative research. Sage Publications, London.

Dyer S, Demeritt D. 2009. Un-ethical review? Why it is wrong to apply the medical model of research governance to human geography. Progress in Human Geography **33**:46–64.

Duffy R et al. 2019. Why we must question the militarization of conservation. Biological Conservation, **232**:66-73.

ESRC (Economic and Social Research Council). 2015. Research ethics. ESRC, Swindon. Available from https://esrc.ukri.org/funding/guidance-for-applicants/research-ethics/ (accessed August 2018).

Fairhead J, Leach M, Scoones I. 2012. Green Grabbing: a new appropriation of nature? Journal of Peasant Studies **39**:237–261.

Fox HE, Christian C, Nordby JC, Pergams ORW, Peterson GD, Pyke CR. 2006. Perceived barriers to integrating social science and conservation. Conservation Biology **20**:1817–1820.

Guillemin M, Gillam L. 2004. Ethics, reflexivity, and 'Ethically important moments' in research. Qualitative Inquiry **10**:261–280.

Hayward MW, Callen A, Allen BL et al. 2019.Deconstructing compassionate conservation. Conservation Biology. **33**:760-768

Ibbett H, Brittain S. (2019). Conservation publications and their provisions to protect research participants. Conservation Biology. **34**:80-92

Kareiva P, Marvier M. 2012. What Is Conservation Science? BioScience **62**:962–969.

Karnieli-miller O, Strier R, Pessach L. 2009. Power Relations in Qualitative Research. Qualitative Health Research. **19**:279–289.

Kiik L. 2019. ConservationLand: Towards the anthropology of professionals in global nature conservation. Critique of Anthropology

Lewis J. 2016. 'Our life has turned upside down! And nobody cares.' Hunter Gatherer Research **2**:375–384.

Lewis, J., Freeman L, Borreill S. et al. 2010. 'Free, Prior and Informed Consent: Implications for Sustainable Forest Management in the Congo Basin.' In *Governing Africa's Forests in a Globalised World.* Edited by Laura German, Alain Karsenty and Anne-Marie Tiani. Earthscan: London, pp 319-331.

Lukes S. 2005. Power: A Radical view. (Second edition) London, Palgrave.

Lunn J. 2014. Fieldwork in the Global South. Ethical challenges and dilemmas. Routledge, Abingdon, UK.

Mascia MB et al. 2003. Conservation and the Social Sciences. Conservation Biology **17**:649–650.

Minteer BA, Collins JP. 2005. Ecological ethics: Building a new tool kit for ecologists and biodiversity managers. Conservation Biology **19**:1803–1812.

Neely A, Nguse T. 2015. Relationships and research methods. Page in J. M. Tom Perreault, Gavin Bridge, editor. The Routledge Handbook of Political Ecology first edit. Routledge.

Newing H. 2011. Conducting Research in Conservation. A social science perspective. Taylor & Francis, Abingdon, UK.

Newing H, Perram A. 2019. What do you know about conservation and human rights. Oryx **53:**595-596.

Palmer J, Fam D, Smith T, Kilham S. 2014. Ethics in fieldwork: Reflections on the unexpected. Qualitative Report **19**:1–14.

Parks T .2008. The rise and fall of donor funding for advocacy NGOs: understanding the impacts. Development in Practice. **18**:213-223

Payne G, Payne J. 2004. Objectivity. in Key Concepts in Social Research. Sage Publications, location .

Peluso NL. 1993. Coercing conservation? The politics of state resource control. Global Environmental Change **3**:199–217.

Perry JE. 2011. Managing moral distress: A strategy for resolving ethical dilemmas. Business Horizons **54**:393–397.

Poudyal M et al. 2018. Who bears the cost of forest conservation? PeerJ **6**:e5106.

Redpath SM et al. 2013. Understanding and managing conservation conflicts. Trends in Ecology & Evolution **28**:100–109.

Redpath SM, Gutierrez RJ, Wood KA, & Young JC. 2015. Conflicts in Conservation, Cambridge University Press.

Robinson JG. 2011. Ethical pluralism, pragmatism, and sustainability in conservation practice. Biological Conservation **144**:958–965.

Saltz D, Justus J, Huffaker B. 2018. The crucial but underrepresented role of philosophy in conservation science curricula. Conservation Biology:1–10.

Sandbrook C. 2018. Weak yet strong: the uneven power relations of conservation. Oryx **51**:379–380.

Sandbrook C, Adams WM, Büscher B, Vira B. 2013. Social Research and Biodiversity Conservation. Conservation Biology **27**:1487–1490.

Sarna-Wojcicki D, Perret M, Eitzel M V., Fortmann L. 2017. Where Are the Missing Coauthors? Authorship Practices in Participatory Research. Rural Sociology **82**:713–746.

Schultz PW. 2011. Conservation Means Behavior. Conservation Biology **25**:1080–1083.

Speiglman R, Spear P. 2008. The Role of Institutional Review Boards: Now you see them, now you don't. The Handbook of Social Research Ethics:121–134.

St John FAV, Edwards-Jones G, Jones JPG. 2010. Conservation and human behavior: Lessons from social psychology. Wildlife Research **37**:658–667.

St John FAV et al. 2016. Research ethics: Assuring anonymity at the individual level may not be sufficient to protect research participants from harm. Biological Conservation **196**:208–209.

St John FAV, Keane AM, Jones JPG, Milner-Gulland EJ. 2014. Robust study design is as important on the social as it is on the ecological side of applied ecological research. Journal of Applied Ecology **51**:1479–1485.

Sultana F. 2007. Reflexivity, positionality and participatory ethics: Negotiating fieldwork dilemmas in international research. Acme **6**:374–385.

Sundberg J. 2015. Ethics, entanglement and political ecology. Pages 117–127 in J. M. Tom Perreault, Gavin Bridge, editor. The Routledge Handbook of Political Ecology. Routledge, Abingdon.

Tilman D, Clark M, Williams DR, Kimmel K, Polasky S, Packer C. 2017. Future threats to biodiversity and pathways to their prevention. Nature **546**:73–81.

Valentine G. 2005. Geography and ethics: Moral geographies? Ethical commitment in research and teaching. Progress in Human Geography **29**:483–487.

Vanclay F, Baines JT, Taylor CN. 2013. Principles for ethical research involving humans: ethical professional practice in impact assessment Part I. Impact Assessment and Project Appraisal **31**:243–253.

Von Essen E, Hansen HP, Nordström Källström H, Peterson MN, Peterson TR. 2014. Deconstructing the poaching phenomenon. British Journal of Criminology **54**:632–651.

Wallach AD, Bekoff M,Batavia C, Nelson MP, Ramp D. 2018. Summoning compassion to
address the challenges of conservation. Conservation Biology **32:**1255-1265

Wiles R. 2013 What are Qualitative Research Ethics? Bloomsbury Academic, London.

Woodhouse E, de Lange E, Milner-Gulland EJ. 2016. Evaluating the impacts of
conservation interventions on human well-being. Guidance for practitioners. IIED,
London.

Table 1. Summary of key issues identified by attendees of a workshop on the issues commonly encountered by during conservation research that are of ethical concern.

Ethical challenge encountered	Section in the article where challenge is discussed
Inappropriate and irrelevant institutional ethics procedures – when researchers have to comply with procedures that make less sense in their research context	"Institutional Ethical Responsibilities"
How to conduct oneself in the context of illegal activities – witnessing or learning of illegal activities; navigating the line between being a researcher vs. an informant	"Conflicts of values
Who should research be serving? Participants? Researchers? Funders?	
Conducting research in contested spaces where conservation is not perceived as a good thing.	
Managing participant expectations - honesty, transparency, and humility. –Fairness of conducting research when it may have little immediate or direct benefit for participants	
Poor prior knowledge of culture and preexisting conflicts when arriving, which one may become drawn into	"Power Dynamics"
Research permits – accompaniment or monitoring by government or nongovernmental organizations, dilemmas over who researchers are accountable and responsible to	
Mistrust arising between different actors	
Consideration of the narratives researchers adopt when discussing findings – how narratives reinforce stereotypes	The legacy of research

Effect of past researchers on one's own research – overcoming reticence from participants because previous researchers acted unethically	29
Protecting the research team and fairly and equitably recognizing their research contribution	
Perpetuating inequality by failing to address power dynamics	