



Considerations for early career conservation researchers seeking to engage across communities and cultures

Joe Duggan^{A,*}  and Erame Sokini^B

For full list of author affiliations and declarations see end of paper

***Correspondence to:**

Joe Duggan
Centre for the Public Awareness of Science,
Australian National University,
42A Linnaeus Way, Acton, Canberra,
ACT, Australia
Email: joe.duggan@anu.edu.au

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ABSTRACT

As conservation researchers operating in the Pacific, we often seek to contribute to solutions through integrative research that involves the inclusion of different voices, knowledge systems and actors in order to build adaptive capacity and ensure system resilience. Implicit in this approach is the need for sound and effective cross-cultural communication skills in a setting where an ill-defined or inexperienced approach could do more harm than good. In this perspective essay, we draw upon the literature and our own lived experiences to offer practical advice for early career researchers (ECRs) in the area of conservation research seeking to engage across communities and cultures. This manuscript is not designed to be a definitive set of rules, but a useful resource with practical advice to help empower ECRs from the Global North to engage with communities across the Pacific.

Keywords: global south, institutional change, Pacific, trust, reflexivity, boundary spanning, co-production, knowledge trust.

Introduction

As conservation researchers operating in complex and interconnected settings, we must be able to cross established boundaries in order to communicate and collaborate more effectively across research disciplines, knowledge systems and cultures (Moon and Blackman 2014). The importance of this approach has been acknowledged in recent literature (Tengö *et al.* 2017; Cisternas *et al.* 2019), but a greater and more practical focus is warranted in the Global South,¹ particularly in Pacific Island Countries (PICs) where climate change and other anthropogenic stressors are being disproportionately felt (IPCC 2014, 2018). This is not because conservation researchers and practitioners are not based in, or active in the Global South (Hakkarainen *et al.* 2020; Mcleod *et al.* 2019; Rayne *et al.* 2020) but the nature of funding, resources and established academic institutions mean that researchers from the Global North are in the privileged position of being able to travel and work with communities, practitioners and researchers in other parts of the world.

If conducted poorly, these interactions can lead to research fatigue and disenfranchisement of stakeholders (Clark 2008; Sukarieh and Tannock 2013), as well as a dependency on external expertise and a failure to address local research needs (Stefanoudis *et al.* 2021). If carried out effectively, this work can lead to longer term capacity building, both in a practical and academic sense (Airhihenbuwa *et al.* 2011) and can lead to increased positive outcomes in conservation efforts (Cisternas *et al.* 2019; Rayne *et al.* 2020). We

¹We acknowledge the inherent issues in the use of the terms ‘Global South’ and ‘Global North’ and recognise that this is now widely accepted as a false dichotomy across numerous fields (Gulrajani and Moloney 2012, p. 85; Gray *et al.* 2020, pp. 869–870). We are not seeking to undermine the inequalities and diversity within many countries. We recognise that neither of these groups are homogenous entities, but am attempting to make a simplistic distinction between those parts of the world that have experienced the most negative effects of globalisation (Pereira *et al.* 2020). We are seeking to use the same language adopted by International Development Research Centres and researchers from across the globe (see Lebel and McLean 2018; Pereira *et al.* 2020).

need to empower the academic community to engage across communities and cultures more effectively, to engage in the sharing and coproduction of knowledge so that we may better face mounting problems like climate change.

Early career researchers (ECRs) are a group in particular need of support. Despite an eagerness to work in this space (Duchelle *et al.* 2009), they face a series of challenges that impact their ability to develop and succeed as academics (Marcella *et al.* 2018; Nicholas *et al.* 2018). Further, they are often not supported to develop the skills to communicate and collaborate across social, traditional and disciplinary boundaries (Müller 2014). Thus, the intention for this perspective essay is to offer practical advice for ECRs in the area of conservation research who are seeking to engage across communities and cultures.² These ECRs may be those who simply wish to work in a new community setting, those who wish to conduct research with a different culture, or those diving straight into transdisciplinary research across cultures with new communities, new actors and researchers from diverse backgrounds. This manuscript is not designed to be a definitive set of rules for conservation researchers, but a useful resource that provides practical advice to empower ECRs.

Throughout this perspective essay, we will draw on the literature and our practical and lived experiences. Joe Duggan is an Australian science communication practitioner working in developing nations of the Global South, particularly in PICs, and Erame Sokini is an environmental science undergraduate, science communication practitioner and *i-Taukei* (Indigenous) Fijian who has worked with outsiders to the Fijian context on multiple occasions. The paper aims to demonstrate that conservation ECRs seeking to engage across communities and cultures stand to improve their likelihood of successful and meaningful engagement through understanding their positionality, identifying and justifying the degree of community participation they are seeking, allowing time to build trust, identifying shared goals with stakeholders, working with boundary spanners to aid in connecting science to community contexts, adopting constant reflexivity and reflection, ensuring that they strive to follow up with communities following research and where possible, and addressing institutional and systemic challenges (Fig. 1).

Lessons from practice

Lesson 1: understand who you are

We believe that the first step in engaging across communities and cultures is to think about who you are as a participant,

researcher and individual. The nature of social–ecological systems means that conservation researchers need to be aware of the contrasting ontologies and epistemologies of both social and natural sciences (Moon and Blackman 2014). These terms have deep roots in social science and can be new and nebulous for conservation researchers with a background in natural science. In essence, your ontology is how you view the world while your epistemology is how you create knowledge (Moon *et al.* 2019b). These are not binary categories, but continuums upon which individuals may be positioned (Herr and Anderson 2012). Different research disciplines have different ontologies and epistemologies, and so do different cultures and communities (Bang and Medin 2010; Moon and Blackman 2014). Understanding how one's own ontology and epistemology may differ to the communities or individuals you are seeking to engage is often referred to as identifying your positionality (Herr and Anderson 2012). An awareness of one's own positionality is crucial. Positionality can greatly impact the relationship between the researcher and the researched, influencing power balances (Rix *et al.* 2014), communication and research conclusions (Berger 2015; Belhabib 2021).

For conservation researchers seeking to engage across communities and cultures, recognising and acknowledging one's own positionality should not be a static act, but a continuous process of self-reflexivity (Nicholls 2009), or a 'continual internal dialogue and critical self-evaluation of researcher's positionality' (Berger 2015). Reflexivity at a personal level is only one piece of the puzzle, particularly when operating in systems with histories of colonialism (Nicholls 2009; Rix *et al.* 2014), but it is a crucial first step. By acknowledging and being reflexive on their own position in the world, a researcher gains valuable perspective that helps to create a safe space (Kisfalvi and Oliver 2015) and an ethical space (Ermine 2007) for deeper interactions and knowledge exchange (for a full positionality statement from the authors, see Supplementary Material, available at the journal website).

There are many tools that one can adopt to take an appreciation of positionality to that next step of awareness and reflexivity. Berger (2015) suggests a combination of keeping logs, repeated review and peer consultation, while others suggest an informal journal along with the creation of a community group to act as support and advisors (Rix *et al.* 2014). A commonly advocated approach is the act of recording interactions and experiences in some way, be it through a journal or more formal research diary (Nadin and Cassell 2006; Engin 2011).

²We acknowledge the extensive debate and consideration around the varied interpretation and definition of these two terms (Minkov 2013; Cobigo *et al.* 2016). Throughout this manuscript, we define community as 'a group of people that interact and support each other, and are bounded by shared experiences or characteristics, a sense of belonging, and often by their physical proximity' (Cobigo *et al.* 2016). We define culture as the 'collective programming of the mind that distinguishes the members of one group or category of people from another' (Hofstede 2001) where a group or category can be as broad as a nation and as narrow as an occupation, age group or gender.

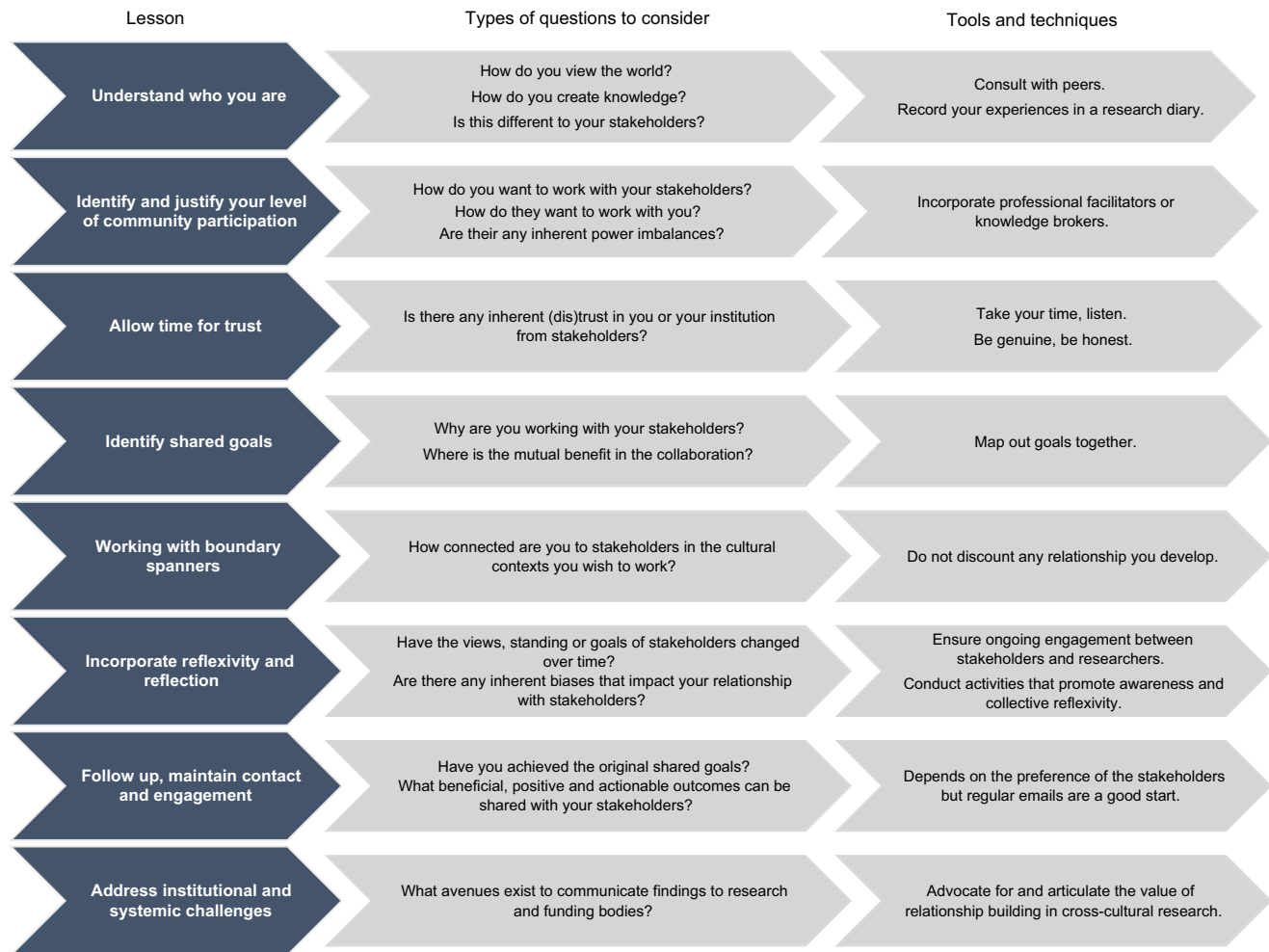


Fig. 1. Key lessons, questions and tools for early career researchers in the area of conservation research seeking to engage across communities and cultures.

Lesson 2: identify and justify your level of community participation

It is crucial to reflect on the level of participation you will seek from communities and cultures. Participation is not a binary decision, it is a spectrum. This was first outlined by [Arnstein \(1969\)](#) with the 'ladder of participation', which was eight levels of community involvement from non-participation through to complete control of project direction. This model has received some criticism as scenarios where stakeholders had less control (lower rungs of the ladder) were implied to be sub-optimal ([Reed et al. 2018](#)). In more recent times, this has led to the creation of a 'wheel' of participation ([Davidson 1998](#)). Irrespective of the model used, the key is that there are many ways researchers and other stakeholders may interact with one another. For a clear synthesis of the different types of participation, see [Lawrence \(2006\)](#) and [Reed et al. \(2018\)](#).

[Cvitanovic et al. \(2019\)](#) outline a useful articulation for conservation applications whereby stakeholder involvement can range from consultation to co-production. As the level of engagement increases, stakeholders transition from being inputs to being active partners in research. That is, the participatory research moves from consultation through engagement to co-production. This is a simple but useful model particularly in a cross-cultural setting. The challenge for an ECR then becomes 'what sort of community participation am I seeking and why?'

Consultative and communicative approaches to participation require low levels of community engagement and can involve community members providing data for a research project or providing evaluative feedback on research outputs ([Cvitanovic et al. 2019](#)). This is often seen as the best course of action when there is limited scope for delegation of decision-making power to community members because a research direction has already been set

(Reed *et al.* 2018). To limit the risk of disenfranchisement and apathy, it is crucial to communicate with stakeholders at the start of the relationship building process to define roles and expectations (Dick *et al.* 2017; Jupiter 2017). These more didactic and less inclusive approaches to participation are fraught with difficulty and risk being viewed by communities as tokenistic, which can lead to disempowerment and mistrust, particularly when it is the only mode of engagement sought (Tuck and Yang 2012). For a lived example, see Supplementary Material.

Deeper levels of community participation, such as knowledge co-production, seek to move participants from being a source of information for use by researchers to partners and collaborators in the research process (Gavin *et al.* 2015; Sterling *et al.* 2017). This leads to an attitude shift of doing things *with* communities as opposed to *for* communities (Cvitanovic *et al.* 2016a). Co-production has been adopted effectively in the Global South for conservation projects (Nel *et al.* 2016; McCarter *et al.* 2018), water and sanitation management (Adams and Boateng 2018; Moretto *et al.* 2018) and in a number of other settings (Pereira *et al.* 2020). This is a proven approach in scenarios where researchers have time and resources to develop relationships, undertake two-way knowledge sharing and are open to changes in the direction and focus of action research (Reed *et al.* 2018).

While seeking to achieve deeper levels of community participation, it is essential to maintain an awareness of power. Poorly managed power dynamics are one of the key reasons participatory research fails to achieve outcomes (for a shared example from the authors' experiences, see Supplementary Material). Power imbalances can be seeded by biases around knowledge production methodologies, and manifested as a lack of appreciation from ECRs for traditional knowledge systems (Moon *et al.* 2019a). Power imbalances can also arise from existing social structures within a research setting or community, leading to a 'fake consensus' in decision making (Reed *et al.* 2018). Professional facilitation (Campbell *et al.* 2016) or even the inclusion of a knowledge broker on the research team (Österblom *et al.* 2017) may limit the impact of such unconscious biases. For a comprehensive toolkit for managing power balance, see Cvitanovic *et al.* (2019).

To maintain participation and engagement, researchers should strive to demonstrate patience, open-mindedness and a willingness to embrace complexity (Kelly *et al.* 2019). Inherent in this is a recognition that you, as the researcher, are only half of the equation (and sometimes less than half). It is impossible to collaborate if the communities or key partners do not want to do the same. It is hard to put this failure down to any one key limitation, but *time* is a significant factor. Specifically, time to build trust.

Lesson 3: allow time for trust

Our lived and practical experience working in PICs has demonstrated that as an outsider, building trust takes time. Trust is a complex concept and has varied interpretations and definitions. We will focus on the definition often used in natural resource management, where 'trust' is viewed as a psychological state in which one party accepts a level of vulnerability based on positive expectations of another party (Stern and Coleman 2015). It occurs at both the individual and organisational level (Fulmer and Gelfand 2012) and does not necessarily need to reach equal levels between actors to be useful. Trust has long been recognised as a key factor in determining the degree of uptake of scientific advice at the science-policy interface and in the area of natural resource management (Lacey *et al.* 2018). Strong levels of trust can lead to increased acceptance of management measures, decreased conflict and increased collaboration (Fulmer and Gelfand 2012; Metcalf *et al.* 2015; Stern and Coleman 2015). In our experience, we would also posit that this translates to respect, increased knowledge exchange, deeper mutual understanding and deeper and more meaningful outcomes. This is particularly important from an ethical standpoint. While it is beyond the scope of this perspective essay to fully unpack the challenges of aligning formal research ethics with the realities of practical work in the field, it is important to note that building trust is crucial in ensuring all parties truly understand, support and accept formal research ethics procedures (Creed-Kanashiro *et al.* 2005; Tilley and Gormley 2007).

Trust, like many aspects of relationship building, takes time (Lacey *et al.* 2018; Song *et al.* 2019), and unfortunately there is no silver bullet to guarantee the development of trust (Stern and Coleman 2015). As a consistent starting point for ECRs, we recommend listening, and being genuine and honest. These may seem like obvious approaches, however in practice, there are challenges that can be amplified when working across cultures. In our personal experience, this has been very evident in PICs (see Supplementary Materials).

Digital correspondence is an effective place to start building trust, but face-to-face interactions provide an even better setting (Storper and Venables 2004; Growe 2019). In face-to-face interactions, listening before talking allows one to set the expectation of two-way knowledge transfer, to learn about approaches other outsiders may have used in the past and learn from their successes or failures.

To generalise at this point is dangerous. Every relationship comes with its own complex combination of previous experiences, current disposition and contrasting ontologies and epistemologies (Stock and Burton 2011; Dick *et al.* 2017). Two techniques that we have adopted to effectively build trust are: (1) sharing information about each other, and (2) participating in experiences that are not directly linked to the task at hand. We built our friendship by

spending time together doing tasks unrelated to work such as fishing and cooking food. In our experience, the exact activity is not necessarily the important thing, as long as it is culturally appropriate and meaningful to the individuals involved. Regardless of the activity, it takes time for trust to develop organically. It often takes more time than is allotted to a research project, a significant challenge for ECRs attempting to succeed in a 'publish or perish' culture (for more detail, see Lesson 8).

Lesson 4: identify shared goals

We believe that shared goals are key to meaningful engagement across communities and cultures. When seeking to have a deeper level of collaboration across cultures, conservation researchers can benefit greatly from identifying shared goals at the outset of a project. That is, 'a collective understanding among all participants of the challenge(s) at hand, as well as an agreed measure of success' (Norström *et al.* 2020). While some level of trust is an important precursor (Song *et al.* 2019), once they have been identified, shared goals can further promote trust between stakeholders (Reed *et al.* 2014; Moser 2016). Shared goals may limit misunderstandings stemming from contrasting epistemologies and assist in creating a culture conducive to knowledge exchange. Having shared goals can also lead to more effective outcomes at multiple scales within a project (Fritsch and Newig 2012; Moser 2016).

In contexts where shared goals are not immediately obvious, formal methodologies are often adopted to draw them out (Haslam *et al.* 2003; Tippet *et al.* 2007). Such approaches are yet to be trialled in a cross-cultural setting with diverse stakeholders, voices and actors, and we would suggest that they would need further modification to be effective in the Global South, particularly if an ECR was expected to facilitate the process as an outsider. Our experience conducting and participating in planning workshops in PICs has led us to believe that any facilitated activity, whereby participants or even groups are singled out, may well lead to a biasing of their responses. While the concept of 'face' or 'respect, pride and dignity of an individual as a result of his or her social achievement and the practice of it' (Leung and Yee-kwong Chan 2003) is most widely acknowledged as being a strong element of Chinese culture, there are elements of many cultures that involve similar dynamics that may impact group dynamics and the ability to identify shared goals (Hussain *et al.* 2012). To combat these risks, professional facilitation could be adopted (Dick *et al.* 2017). We recommend that facilitation should be conducted by an insider to the community (Cvitanovic *et al.* 2016a).

For an ECR, the funding and support may not be in place to meet these needs. Despite this, if a strong relationship with key stakeholders is developed over time with an emphasis on Lessons 1–3, then ECRs can put themselves in the best

position to develop mutual goals with all stakeholders. We have had success in this space, particularly when coordinating small teams although the methodology used to identify the goals is not the most important thing. Time and trust are key (further examples of this are outlined in the Supplementary Material).

Lesson 5: working with boundary spanners

We have experience either working with, or working as, boundary spanners in PICs and see this role as a crucial one. Boundary spanners and the act of 'boundary spanning' emerged out of the business literature in the 1970s (Aldrich and Herker 1977). It is often a poorly defined and misinterpreted role (Bednarek *et al.* 2018), perhaps due to the diverse functions, responsibilities and techniques that boundary spanners may adopt (Williams 2013) or the diverse fields in which they work (Summers and Kriwoken 2015; Bednarek *et al.* 2018). At their core though, boundary spanners are a group or individual that facilitate 'transactions and the flow of information between people or groups separated or hindered by some gap or barrier' (Long *et al.* 2013).

Boundary spanners are a crucial component of cross-cultural conservation research. At organisational levels, they can connect science to practice and improve high level knowledge exchange (Summers and Kriwoken 2015). At a community level they can increase the trust a community has in a researcher (Lacey *et al.* 2018), communicate research processes and outcomes in formats much more relevant and attractive for the community, and provide access to practical knowledge around the local context (Campbell *et al.* 2006; Hakkarainen *et al.* 2020).

In the Global South, the term boundary spanner is often synonymous with extension officer/worker, gatekeeper or intermediary (Hakkarainen *et al.* 2020; Mcleod *et al.* 2019). While there are clear and nuanced differences in how these roles operate, they share a common function as facilitators of, and conduits for, knowledge exchange between insiders and outsiders. Traditionally, a boundary spanner is a dedicated role taken up by a trained professional, such as a knowledge broker (Williams 2013). But when conducting research in PICs, we have found boundary spanners can be drawn from a range of community roles. A local priest, coach or engaged community member that has the respect and trust of the broader community can often times be the most effective boundary spanners, actively reducing barriers to community engagement (Cvitanovic *et al.* 2016a). In these instances, developing and maintaining trust with your boundary spanner, just as you would with the broader community, is key. Maintaining optimum trust leads to a strong relationship and effective knowledge exchange (Coleman and Stern 2018; Lacey *et al.* 2018).

Lesson 6: incorporate reflexivity and reflection

We have already touched on self-reflexivity above, that is, being aware of one's positionality and how it may change over time, but reflexivity is a more complex process than a researcher simply holding a mirror up to themselves (Wilkinson 1988). There is much debate on how best to define these complexities, but the key point is that reflexivity is more than just an individual process. It applies to groups and systems (Wittmayer and Schöpke 2014; Knaggård *et al.* 2018; Wolff *et al.* 2019). At this level, the lines between reflexivity and critical reflection get blurred, and indeed these terms have at different times been used both interchangeably and defined as distinctly separate (D'Cruz *et al.* 2007). For our purposes, they are best viewed as interlinked approaches to critically analysing oneself and the world around us so as to become more aware of how individuals, groups, systems and processes impact other individuals, groups, systems and processes.

Conservation challenges are invariably complex problems occurring within complex systems (Pereira *et al.* 2020). Within these systems, it is entirely feasible that the views, standing and goals of stakeholders may change over time (Norström *et al.* 2020). As such, reflexivity and reflection must be incorporated at multiple levels to evaluate and manage relationships, strategies, outputs and outcomes (Popa *et al.* 2015; Sol *et al.* 2018), allowing for the recalibration of goals between stakeholders and increased opportunities for rapport building and trust (Nicholls 2009). This becomes particularly important when working with communities in the Global South that have a history of colonialism. Rix *et al.* (2014) acknowledged this while working in the health sector with Aboriginal Australians, recognising that the system itself had inherent biases that impacted the relationship between healthcare providers and patients. To increase awareness and practice of reflexivity at broader scales, Temper *et al.* (2019) recommend adopting 'political rigour' or 'the observation that all research, science and forms of knowledge production are inherently political enterprises, impacted by unequal power relations ... a critical realist mechanism that is reflexive and critical of our stance of 'truth' and opens up the possibility for multiple truths'. In light of this, they have designed tools and devices for promoting awareness of a researcher's (or research group's) positionality and reflexivity such as the 'Tarot of transgressive research'.

Other researchers advocate for ongoing face-to-face engagement between stakeholders and continual refinement of the participatory process (Cvitanovic and Hobday 2018). As a minimum, ECRs must acknowledge that there are background values and assumptions operating at many levels that can influence research and being reflexive and aware of these dynamics can increase the likelihood of meaningful engagement across cultures and communities.

Lesson 7: follow up, maintain contact and engagement

We have seen the benefits of maintaining contact first hand, although this point often gets forgotten by both experienced researchers and ECRs (Cornell *et al.* 2013; Hakkarainen *et al.* 2020). Following up on your research outcomes and findings with the groups you are working with is crucial as it helps build credibility (Young *et al.* 2016), prevents research fatigue and can help strengthen science–society relationships (Clark 2008; Hakkarainen *et al.* 2020). A failure to re-engage following research or indeed any sort of activity could be perceived as a breach of trust that could take significant time to recover or even end a relationship (Lacey *et al.* 2018). It can also mean that long term impacts may be missed if they occur outside of the project time frame (Norström *et al.* 2020).

This does not have to be a time-consuming activity, but just like all the other elements around relationship building, it should be a two-way process, conducted in a way that suits the group or individuals with whom you are engaging and with particular consideration to the language used (Amano *et al.* 2016). The value in following up with key stakeholders and maintaining some level of ongoing engagement has been recognised as a key element in success stories from natural resource management and the intersection of science, policy and practice (Cvitanovic *et al.* 2016b). This approach takes the interaction from a linear one to something much more cyclical and interactive, allowing for two-way knowledge exchange. Viewing relationships in this light adds an inherent element of reflection into our actions as conservation researchers, a crucial consideration for the complex and everchanging systems we work with (as outlined above).

Inevitably, following up with your stakeholders can have benefits for all parties, be it through continued research opportunities or deeper shared understandings. We have found that simply reaching out to key contacts once every few months via email can demonstrate that you continue to value the relationship.

Lesson 8: address institutional and systemic challenges

The final consideration in this perspective essay is the need to address institutional and systemic challenges in order to empower ECRs to participate in effective cross-cultural engagement. In this section, we draw on the published literature and our own lived experiences to reflect on these barriers and challenges, and articulate a roadmap for overcoming them.

Building relationships with a diverse range of stakeholders representing different actors, voices and knowledge systems is not a quick process (Polk 2015; Alexander *et al.* 2019; Wolff *et al.* 2019). It takes time, patience and speaking from

experience, a significant amount of trial and error. ECRs are working within an academic system where the most prolific publishers are seen as the most successful (Horta and Santos 2016; Nicholas *et al.* 2017; Warren 2019). As such, it is little wonder that we would prioritise our metrics over something less tangible, such as deeper engagement with stakeholders. Indeed there is a prevailing perception in academia that the strategies and processes outlined above may result in a less rigorous or less valid piece of academic work (Polanyi and Cockburn 2003; Polk 2015). Regardless of one's breadth of practical experience, it is possible that an ECR may never feel like they truly belong in a field until they have a high number of publications with their name on them. This reality is even more detrimental in a cross-cultural context where co-publishing may be seen as a powerful tool for relationship and capacity building, considering the challenges that ECRs with English as a second language may face when seeking to publish their work (Raitskaya and Tikhonova 2020).

To support ECRs in walking this tightrope, institutions and research groups need to foster a culture that values the processes outlined above, not just externally when conducting research, but also internally when dealing with each other and designing and implementing research plans and research outputs. We believe the first step in facilitating this change is through greater interdisciplinary collaboration within academia and showcasing of interdisciplinary research by research institutions.

When lamenting the challenges ECRs face within the academic system, we were once told 'We aren't paid to build relationships'. This is certainly true of interdisciplinary research (Bromham *et al.* 2016), and experience in the field has confirmed it for conservation research specifically. Funders expect outputs and specific targets to be met. This creates a clear pressure for researchers; on one hand, they need to show progress to ensure continued funding while on the other hand, the indicators of relationship development are often unclear and nebulous. Further complicating this issue is the fact that to court external funders a certain level of pre-determined project structure needs to be pitched. This may limit the degree to which true collaborative development can be undertaken with the various actors and networks involved in the project (Polanyi and Cockburn 2003). On top of this, collaborative approaches and relationship building practices may lead to increased expenses that stand to fall under more scrutiny than traditional lab expenses (Cvitanovic *et al.* 2019).

We believe that ECRs need to work hard to tell their story to funders in the right way. Further research is required into how best to document and articulate relationship development to funding bodies. If we can successfully identify new ways of articulating outcomes and progress to funders, we place ourselves in a position to initiate a culture shift. If done effectively, we believe that this could lead to increased

funding and more opportunities for cross cultural collaborations like the one that has led to the creation of this paper.

Conclusions

In this paper, we have sought to provide a number of key considerations for ECRs in the area of conservation research who are seeking to engage across communities and cultures. While originating from lived experience and being supported clearly by the literature, this is by no means a definitive list for all researchers. It is, however, a useful touchpoint, particularly for ECRs from the Global North operating in the Global South. Our hope is that the considerations outlined above can support ECRs in their journey, empowering them to be drivers for change pioneering new practice, participating in meaningful knowledge coproduction and amplifying the voices of diverse actors.

It is important to note that these lessons can only be powerful when accompanied with a broader drive for change. If western knowledge systems and academic institutions are serious about transdisciplinary research and including the voices of diverse networks to improve research processes and outcomes, then they need to begin with greater support of ECRs.

Supplementary material

Supplementary material is available [online](#).

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Author affiliations

^ACentre for the Public Awareness of Science, Australian National University, 42A Linnaeus Way, Acton, Canberra, ACT, Australia.

^BFiji National University, Suva, Fiji.