Including Rural America in academic conservation science

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1 Introduction

Academia, including academic conservation science, is making historic strides on diversity, equity, inclusion, and justice (DEIJ). In recent years, there have been powerful calls for promoting diversity and inclusivity in conservation science (e.g. Schell et al., 2020; Rudd et al., 2021). These calls have been accompanied by concrete signs of progress, including more frequent land acknowledgements (Huntington, 2021), calls for paid internship opportunities (e.g. Vercammen et al., 2020), prioritizing DEIJ in faculty hires (Cronin et al., 2021), calls to support interdisciplinary research (Bennett et al., 2016), and many other developments. The considerable momentum on DEIJ offers an opportunity to continue

promoting DEIJ in a variety of senses. In the U.S. context, rural attitudes and values—broadly speaking—have received relatively little research attention in the conservation literature, presenting an opportunity for more intentional inclusion of rural communities in conservation (Bonnie et al., 2020).

Why is rurality important to consider in conservation DEIJ discussions? One reason is that characterizing rurality is elusive; in the United States, distinct Rural Americas descend from distinct rural histories. For Black and Indigenous communities in the United States, rural experiences are tied to legacies of injustice over centuries, including killings, cultural genocide, forced removal from homelands, rights and legal violations, slavery, and a number of other injustices (Gates, 2011; Madley, 2017; Gilio-Whitaker, 2019). For rural communities of color, historical legacies of racial injustice are compounded by injustices tied to rurality more generally, such as poverty and isolation (Davis et al., 2020a).

Additionally, rural communities in the U.S. experience disparities in health, education, and income (Hartley, 2004; Gabe et al., 2007; Burdick-Will and Logan, 2017). For example, many students in Rural America experience limited funding, limited access to technology, histories of segregation, and barriers to opportunity and cultural resources (Davis et al., 2020b). Rural students are less likely than non-rural students to attend college, four-year institutions, selective schools, and universities that confer graduate degrees (Koricich et al., 2018).
An important antidote to these injustices is representation, e.g. Black teachers helping guide Black students (Davis et al., 2020a). In academic conservation science, increased representation and inclusion could also help ease tensions between rural constituents and pro-conservation entities in the United States, which have existed for decades (Yung et al., 2003; Robbins, 2006; Messick et al., 2021).

Discord between conservation and rural stakeholders has famously played out in the U.S. West, home to decades-old contestations of values between local constituents and conservation entities. For example, for some private landowners in the Western U.S., the Endangered

Species Act of 1973 became a mechanism for exclusion from decision-making on their own lands (Meltz, 1994), and a salient symbol of federal government overreach. For example, differing values have led to strain over conservation between independent, place-based ranchers and outside NGO and government representatives in Montana's Eastern Front (Yung et al., 2003). In the coalition-building that has been attempted in the U.S. West, some coalitions have bridged differences in environmental values, while others—strikingly—have not, despite highly similar views on environmental policy (Robbins, 2006).

In addition to arguments based on justice, rural inclusion in academic conservation science also provides fresh values and perspectives. For example, Indigenous land stewardship, based on extensive histories in rural landscapes, is critical for equitable energy transitions in rural areas (Eisenberg and Warner, 2021). Inclusion of rural values also offers opportunities for reframing intractable policy conversations. For example, Diamond et al. (2021) reported that 78% of rural midwestern voters found a climate policy argument convincing when it was framed in terms of benefits to farmer livelihoods. Inclusion of rural values also offers new opportunities for diverse conservation teams. Diverse teams are important for creativity, both generally (Paulus et al., 2017) and in conservation specifically (Gould et al., 2017).

To promote justice for excluded rural communities and to diversify perspectives in conservation, we advocate for more intentional inclusion of rural U.S. communities in academic conservation science. Toward this goal, we advocate for three pathways for rural inclusivity in academic conservation science: (i) emphasizing knowledge co-production through partnerships that resonate with rural lifestyles and values; (ii) proactively recruiting and training rural students in conservation science degree programs; and (iii) reshaping academic advancement criteria to incentivize rural engagement.

2.1 Pathway 1: Emphasizing knowledge co-production and partnerships that resonate with rural lifestyles and values

Trust-building between scientists and local communities can be facilitated by genuine academic-community partnerships (Adams et al., 2014). Face-to-face engagement allows an irreplaceable cultural cache to be built between researchers and stakeholders, and helps researchers develop a more intimate knowledge of the socio-cultural realities of a study context or constituency (Roux et al., 2006). For example, rural communities tend to bear disproportionate burdens on the front lines of environmental issues, such as climate change-related natural disasters and water pollution (Lal et al., 2011). Rural community members are also critically important stewards of U.S. landscapes, as tribal representatives, farmers, ranchers, hunters, and conservation managers. As such, there is a powerful opportunity for academics to work with locals to identify locally-relevant conservation solutions (Figure 1). This work will bear witness to the considerable common ground that exists between rural stakeholders and conservation academics who agree on environmental stewardship but can be separated by politicization and mistrust of government (Bonnie et al., 2020).

Collaborations between academics and local communities provide opportunities for researchers to learn about the priorities of rural communities while supporting local initiatives and leadership (Smith et al., 2009; Rodrigues and Shepherd, 2022). Over time, these collaborations may extend beyond pragmatic partnerships to reform the value orientations, skills, and knowledge sets of all parties. Moreover, environmental policy proposals that incorporate local values and livelihoods can be convincing to rural stakeholders (Diamond et al., 2021). Other possible avenues for renewed academic-public partnerships could include collaborations with religious organizations on earth stewardship through climate action, something for which religious scientists are particularly well-positioned (Hanes, 2014). Moreover, thoughtful alignment of climate messaging with religious language and values can help foster a bipartisan agenda (Wardekker et al., 2009).

2.2 Pathway 2: Recruiting and training rural students in conservation science degree programs

Recruiting rural students is a promising pathway for strengthened relationships between rural and university communities (Figure 1). Rural students are less likely than non-rural students to attend college, four-year institutions, selective schools, and universities that confer graduate degrees (Koricich et al., 2018). We advocate for more intentional recruitment of rural students to undergraduate, graduate, and faculty opportunities in conservation. In recent years, there have been a number of powerful calls for diversity, equity, and inclusion within academic science (e.g. Davis, 2020; Schell et al. 2020; Subbaraman et al., 2020). Building on this momentum, academic conservation scientists have an opportunity to increase representation still further by recruiting students from rural backgrounds in conservation science. This form of inclusion could help integrate rural students into opportunities and resources that are often not accessible to them (Davis et al., 2020a).

Greater inclusion of rural students in graduate and undergraduate conservation programs could offer several benefits for advancing conservation. First, rural students could help create new links between conservation and local issues in rural communities, such as agricultural interests (Diamond et al., 2021). Moreover, rural students could be new messengers for climate policies in their communities, situating climate science within socio-culturally contextualized ethics (Van Houtan, 2006). In order to inspire lasting support for conservation issues, scientific arguments should be expressed within communally accepted ethical frameworks and existing social traditions (Van Houtan, 2006). Rural voters often have sophisticated environmental views, but disagree with some environmental policies due to low trust of the federal government (Bonnie et al., 2020) or an absence of place-based values relevant to their lives and livelihoods (Yung et al., 2003; O'Neill et al., 2007). Rural students, then, could be a critical link between academic and rural communities, helping build trust, increasing attention to local issues, embodying rural values, and communicating conservation science in locally relevant ways.

2.3 Pathway 3: Reshaping academic advancement criteria to promote rural engagement

Another major step forward for academic-rural ties would be a re-orientation of the incentive structures and norms of academia to more fully include and value public engagement (Alperin et al., 2019). For the academic conservation science community to be more committed to creative forms of public engagement, the value of service must be grounded in tangible structures and incentives, especially through greater weight in academic advancement review processes (Figure 1).

A new faculty model in service of these goals should reframe the standards of scholarship and advancement. For example, Creativity Contracts are an approach to help encourage faculty pursuit of a wider variety of academic activities through custom-designed, malleable roles (Boyer, 1990). One study showed that 75% of governing boards, 70% of Deans, 67% of provosts, 71% full-time non-tenure track faculty, and 50% of tenure-track faculty found this idea attractive (Kezar et al., 2015). For example, through Creativity Contracts, participation at a rural stakeholder workshop could carry similar weight as a presentation at an academic conference. Outreach efforts, rather than being devalued, should hold weight in evaluation and advancement (Schell et al., 2020). To bring about this change, institutional support for public outreach must increase, aligning tangible practice with widespread acknowledgement of the importance of outreach (Doberneck, 2016; Rose et al., 2020). Indeed, some universities—including some land-grant institutions—have strayed from earlier roles as reliable partners for local stakeholders such as farmers and union workers (Jamieson, 2020). While this important work continues through extension offices, NGOs, and individual academics, academia as a whole could more fully embrace its public outreach imperative (Kezar, 2018).

What can outreach by conservation academics to rural publics look like? A few ideas, some of which we have implemented ourselves, include workshops, public lectures and town halls, novel conference structures, op-eds in newspapers, podcasts, museum exhibits, collaborations with religious groups, participation on local or regional boards, and art shows. While these ideas are not new and are currently put in practice to some degree (particularly by the

important work of extension specialists, NGOs, government agencies, and science communicators), they are rarely a focus in advancement deliberations (Kezar, 2018). At present, the conventions of our discipline can be self-defeating and pull us away from the very constituents we seek to serve, learn from, and engage. As the criteria by which academic careers are judged, advancement standards should reflect rather than undermine the priorities and values of conservation science.

3 Discussion

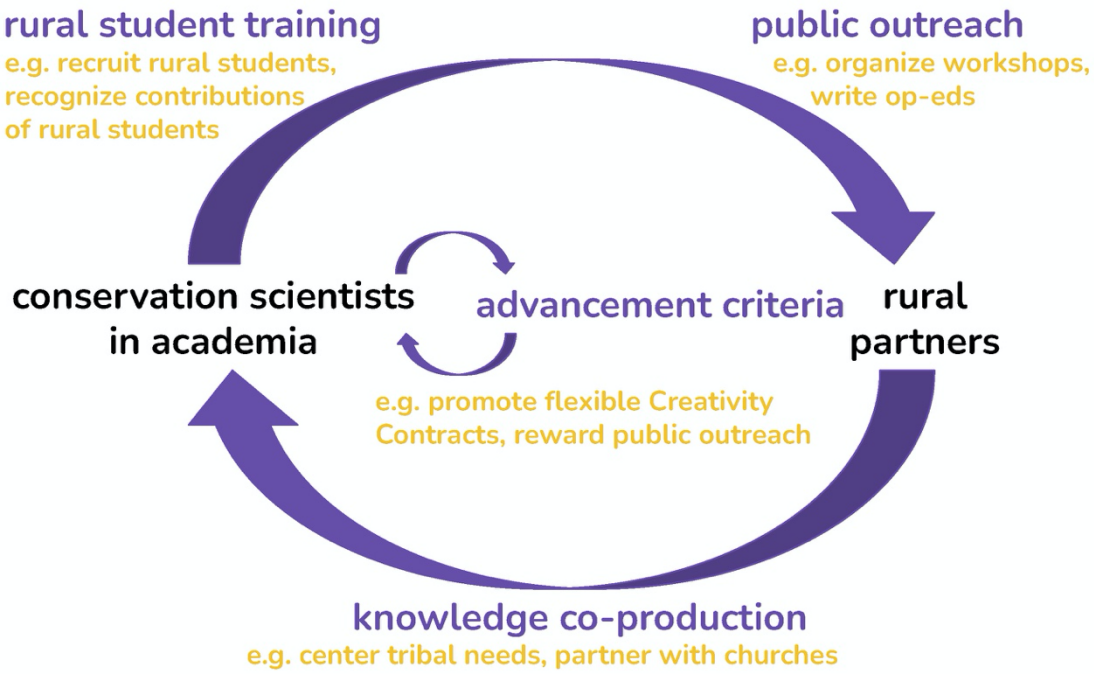
As part of the movement for advancing diversity, equity, inclusion and justice, academic conservation science is seeking to increase accessibility for underrepresented groups. However, DEIJ efforts in academia have, by and large, not prioritized rurality, and rural students are underrepresented in science at every stage (O'Neal and Perkins, 2021). Additionally, ongoing conservation challenges—including 30x30, state and federal climate policy, expanding renewable energy, etc.—need fresh approaches and ideas from constituents of different backgrounds and geographies. Furthermore, as part of a "boundary science", conservation academics have an opportunity to help liaise between science production and decision-making (Cook et al., 2013), and there are important opportunities for this work in Rural America (Bonnie et al., 2020). We suggest that inclusivity of Rural America in academic conservation science would advance justice goals, diversify perspectives, and provide pragmatic opportunities for conservation.

As conservation scientists in academia, we have a powerful opportunity to build bridges between rural communities and academia in the United States. Most of the U.S. public wants action on the environment (Pew 2016), including climate change (Pew 2020), and rural communities are important stakeholders in conservation solutions. However, the aversion of many rural constituents to some forms of environmental legislation shows we must do more to build solutions that emphasize shared values (Bonnie et al., 2020; Diamond et al., 2021). Through co-producing knowledge, recruiting rural students to conservation science programs,

and increasing the flexibility of academic advancement standards, conservation academics can expand DEIJ for communities in Rural America while enriching conservation partnerships.

4 Figure

Figure 1. Conceptual diagram of recommended mechanisms for academic-rural engagement, with examples of each mechanism.



5 Author Contributions

DJK, MSC, CEW, LW, and JSB contributed to early discussions that led to the paper. All authors contributed ideas and insights that strengthened the paper. All authors contributed to editing the manuscript. All authors approved the submitted version.

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