

Mountain Views

Chronicles of the Consortium for Integrated
Climate Research in Western Mountains

CIRMOUNT



Informing the Mountain Research Community

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Participants in the Rocky Mountain Sustainability and Science Network Academy (see Halliwell and Bowser, page 4). Photo: Carrier Lederer.

Front Cover: Spring bloom of paintbrush, larkspur, and phlox. Three Sisters, Oregon. Photo: Jim Blanchard.

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Back Cover: Field Frames, Photo: Betsy Neely

Read about the contributing artists on page 74.

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Voices in the Wind

QUESTION: Broadening the mix of heritages, legacies, cultures, and orientations that makes up our community of mountain science professionals has proven difficult despite efforts to increase diversity. From recruitment to retention, mentoring to modeling, there exist persistent challenges as well as ample opportunities. Have you observed or personally encountered barriers or behaviors that demonstrate intentional or unconscious bias? What recommendations and actions can you suggest that could help realize a future for our community that is truly inclusive?

Anna Sala, Lisa Cutting, Shakeeb Hamud, Jia Hu,
Daniel Ruiz Carrascal, Karen Pope, Nigel Golden ,
Kavya Pradhan, José Sánchez, Henry Diaz, Rene Henery,
and Sudeep Chandra

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Brian Scavone
Jim Blanchard
Wally Woolfenden
Carrie Lederer

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Brian Scavone, poem (*Myadestes townsendi*)
Wally Woolfenden, Frog Cartoon and Cactus Bunny

EDITOR'S WELCOME

Celebrating Diversity in our Science

This winter in California's Sierra Nevada we got used to shoveling—a lot of shoveling. Slowly the record snowpack is melting, transforming the vast white landscape into a kaleidoscope of spring wildflowers, and unveiling brilliantly colored slopes in the uphill march. In *Mountain Views* (MVC) we often focus on biodiversity in mountain environments, and so I felt it was natural and important that we celebrate diversity in our research community as well. Why now? No one with eyes open wouldn't observe that our clan of western North American mountain scientists is dominantly white, educated, and comfortable with outdoor work, reflecting a history of familiarity and ease in the mountains (an unconscious bias that several authors mention). A gentle but direct comment Meera Sethi made in her Autumn 2018 MVC summary of the *MtnClim 2018* meeting (read it also in her Guest Editorial, page 2) woke me to the decision to address the issue now.

In developing this topic for MVC, I talked with people more familiar than I am on how to address diversity. My main goal is to celebrate diversity in our science. I want to encourage more voices, more backgrounds, greater comfort in doing our science together. A better way to foster this than complaining or litanizing the wrongs done, I felt, was to feature a kaleidoscope of voices—colleagues celebrating their science, experiences, and art, sharing their opinions and recommendations, and offering hope.

I struggled with challenges, knowing that I would be criticized for any direction I took. The first challenge was the giant reality of individual diversity. Behind every face, no matter the color, age, or background, is a unique experience of life and the world. Why not just allow diversity to emerge from individual authors as usual in MVC and be done with it? Stick with the science. Trained as a geneticist, I get this, and rejoice. I also remember Sewall Wright (early 20th-century population geneticist) and his *F*-statistics. These mathematically decompose total diversity in a population into their various groups. For so many reasons groups develop, genetic or not. And for so many reasons, intentional or not, discriminations and biases develop among groups—of humans, at least. Thus while honoring the individual contribution each of us brings, there is no question that giant hurdles remain in dissolving boundaries related to such groups, whether they be of sexual orientation, race, cultural background, age, physical abilities...

One of the hardest challenges, then, became the issue of tokenism in regard to those I invited. How to bring important elements of diversity into the issue without insulting authors by implying they speak for a group, or worse, were invited only because they are a

token of the group? In the end, I decided there is no way around this offense (if taken) if I wanted to daylight certain elements of group diversity. So I invited selectively.

And who am I to tackle this topic? White, privileged, straight. I never missed a meal, had loving and supportive parents, hiked my way through college summers in the Cascades of Oregon (and got paid, thank you, USFS). I will share this one story that shaped, and continues to shape, my life. I met my future husband, Jeff, when we TA'ed a genetics course together as first-year PhD students at UC Berkeley. We married soon after, and our daughter was born seven years later. Partly because of the times, partly due to our trust, Jeff gradually realized something about himself: he is gay. Obviously this blew our world open, surprising us, shocking friends and family. Most relevant to the MVC topic, we made the decision to stay married. There was no question we were soulmates and wanted to spend our lives together. We also chose to have partners of our own. Those decisions made an already unconventional situation incomprehensible to many, and we lost friends and family as a result. Despite that we tried to explain how these decisions were based on the unwavering need of our love, misunderstanding, disapproval, even shunning, remained.

As a result of this small venture into the world of bias, I know what a toll discrimination can take on the individual. I often felt diminished, insecure, anxious, and, among other things, my science productivity suffered. I can only imagine how it would be to deal with serious biases and discriminations every day of one's life.

I hope the articles in this issue provide insight for all readers, from the science to the personal content. I am elated because the authors share so many tangible recommendations and useful suggestions for action. I am deeply grateful to each author, especially when writing about personal experiences, for their honesty, transparency, and courage to speak. I believe it has been a bit of a journey for each, obviously a path that stretches out long in front of us.

If you would like to comment on this issue, please write me, and I will share selections in the next issue of MVC.

--Connie Millar

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José Sánchez is a Research Economist with the USDA Forest Service, PSW Research Station, focusing on the valuation—or determining a quantifiable value—that people place on intangible forest resources (commonly referred to as “ecosystem services”), such as recreating in a forest or having clean water.



I grew-up in the inner city and didn't have many opportunities to visit the forests or go up the mountains. Actually, I did not know much about the mission of the Forest Service or any other natural resource agencies, other than seeing billboards and commercials on Smokey Bear and how “you can prevent wildfires.” Based on my personal experience, the lack of information for disadvantage communities on the Forest Service and other natural resource agencies mission and career opportunities has led to an underrepresentation of people of color in these agencies, especially as environmental scientists and professionals. Therefore, this limits recruitment of highly talented minority students as they are unaware of professional careers available with Forest Service and other natural resource agencies. In addition, the current low number of minority scientists make it difficult for outreach and to mentor potential candidates. One recommendation is focus on students from disadvantaged communities by increasing the number of internships opportunities (i.e., Pathways Internship Program) with conversion possibilities. If possible, matching the student with a minority scientist will be ideal to increase retention. Another suggestion is to have outreach activities in high schools and universities with large numbers of minority students to increase awareness of potential internships and career opportunities available with the Forest Service and other natural resource agencies.

Henry Diaz is a research meteorologist, retired from 33 years with NOAA. Currently Adjunct Professor at the University of Hawaii, he continues to pursue problems in climate impacts and has logged more than 200 miles walking Maui beaches since retirement.



An African proverb that has been mentioned recently in some political circles affirms that, “It takes a village to raise a child.”

As early as in classical Greece, the significance of mentoring was recognized for its importance¹. The Merriam-Webster Online Dictionary defines a mentor as “a trusted counselor or guide.” Serving as a mentor brings many challenges and rewards, with the best mentors “working to shape their mentees into leaders, rather than just good followers. If done well, the long-term impact of mentoring can offer life- and career-changing benefits to both parties. A mentoring relationship is a win-win for all parties.”²

For most, if not all of us, there were places and times when someone's guidance, advice, or assistance became an important catalyst in that person's future pathway. It turns out that evolution has endowed most humans with greater feelings of satisfaction when giving to others than they normally feel when receiving from others³. I can attest to that and to the fact that both mentors and mentees in my own experience have been both friends and colleagues. I have always considered it a privilege of my profession to have been in the company of exceptionally smart and creative people.

By the Year 2045, the generation being born today will be turning 25 years of age. The detrimental effects of climate change on the environment and society will already be evident, as well as the even more dire future prospects of their unborn children 25 years hence. It is not a euphemism to state that our house is on fire—the times call for all hands on deck.

Notes

1. A character in Homer's epic poem "The Odyssey" could be called the original mentor. When Odysseus, King of Ithaca went to fight in the Trojan War, he entrusted the care of his kingdom to Mentor, who served as the teacher and overseer of Odysseus' son, Telemachus. From A Guide to Understanding the Role of a Mentor, <https://www.thebalancecareers.com/a-guide-to-understanding-the-role-of-a-mentor-2275318>
2. <https://www.thebalancecareers.com/a-guide-to-understanding-the-role-of-a-mentor-2275318>
3. Giving really is better than receiving. Psychology Today. <https://www.psychologytoday.com/us/blog/the-social-self/201012/giving-really-is-better-receiving>

Rene Henery is an Ecologist and Eco-geographer who holds a joint position as California Science Director for Trout Unlimited and part time Research Faculty with the University of Nevada, Reno, Global Water Center. His work embraces water, diversity, connectivity and equity as pathways to resilient ecosystems and communities.



Disclaimer: I want to acknowledge that diversity is an inherently challenging topic for me to engage. To discuss it feels vulnerable, in the painful memories that it evokes, the personal trigger points it touches on, and in the way that it exposes my sensitivity to dynamics around it and in that my "difference." Woven through my life experience as a person of color has been the complex dilemma of having to choose whether to be vulnerable, share, and expose myself in doing so, or to take on some mask or pretense in an effort to hide my difference, not disturb the dominant culture around me, and deny the self-awareness and insecurity that constantly comes up as a function of my experience not fitting in with what is "normal." Because, in my life and work I am fundamentally interested in making and repairing connection among living things, in healthy living systems and communities, in resilience born of diversity, I do my best to share, and to grow and heal. What I share, however, carries all of the above complexity and sometimes artifacts of my struggles and challenges. I offer it only as what I perceive from my vantage; as a window into my experience.

Unpacking the challenge of cultivating diversity in the related fields of science and conservation is both a journey into our collective baggage, and a window into the possibilities for growth, adaptation, and change before humanity. At the core of this challenge, I would suggest, are two fundamental misunderstandings: 1) a misunderstanding of the nature and opportunity of diversity, and 2) a misunderstanding of the nature and opportunity of science.

Over the last decade I have been struck by a growth in the popularity of (and to a lesser extent actual attention to) diversity, equity, and inclusivity in a range of popular-cultural and professional earth science and conservation contexts. As an expression of this, I have been invited to and participated in several structured forums, conferences, and workgroups all in some way focused around the intention of bringing more diversity to the earth sciences and conservation. In almost all cases, what was meant by this was increasing the number of

people, like myself, identifiable by the organizer as belonging to a demographic perceived as underrepresented in science and conservation as they exist currently. To generalize, the desired outcome from my participation was essentially the same culture and system, working towards the same outcome, but with the addition of my more colorful face. What this approach to diversity misses is that different faces often come with different backgrounds, stories, experiences, and values which, if incorporated into the system, may fundamentally change how the system operates. For example, several of the forums I participated in I would characterize as attempting to increase diversity by training people on some facet of the culture existing in conservation and earth sciences today, be it related to leadership, organization and management, or messaging and engagement with the media and public. From my vantage, however, **that normative impulse: to include by acculturating, fundamentally undermines the diversity it is nominally in pursuit of.**

I am the son of a South American father with heritage extending to four continents and a Euro-American mother. The racial, ethnic, and cultural facets of my personal and familial history, however, I experience more as parts of the palette that I create with than colors with which I singularly identify. I tend to see all people in this way: life expressing itself through a unique collection of contexts, experiences, genetics, love and wounding, separation and connection. Every person, (in a sense every living thing) from this vantage is a collection of culminating moments in a long and unique thread of life through time. From this place, the opportunity of a diverse system really becomes about all of those unique expressions becoming fully realized together. That realization, however, is unlikely to occur in contexts where those diverse expressions must first pass through a normative filter, woven of the same colonial, patriarchal, white supremacist, or other oppressive and value-effacing threads that (often intentionally, at least at the outset) created the contextual homogeneity in the first place. In short, in my experience, diversifying earth science and conservation cannot occur through diverse people adopting the normative cultures of those fields and spaces as they exist now, it can only occur through those fields and spaces reforming to incorporate, support, and reflect the plurality of experiences, perspectives, and expressions of diverse people.

The idea that deconstructing normative culture and replacing it with an emergent expression of difference bound by belonging is central to supporting diversity, highlights a second misunderstanding: that of the role and opportunity of science. At its core, science is a collection of individual, subjective experiences conveyed in a language and suite of methodologies that seek to be transparent and replicable. In part, as an

expression of its history and application not only for knowledge but for oppression and control, science often is misperceived as providing universal truth. The notion that something can provide a truth that applies across people, independent of the differences in their histories, experiences, and values, fails to recognize the extent to which truths are personal and a function of perception. The application of science in pursuit of universal truths is thus inherently normative and counter to diverse expression. From my vantage, that pretense in and around science is, understandably, at the core of the frustration and anti-scientific sentiment increasingly bubbling up in the US and elsewhere. But this misunderstanding does not mean that the field of earth science cannot become more diverse or that science does not have a critical role to play in the pursuit of more diverse modes of being. The vast differences in some facets of people's experiences can make connection and communication challenging. Science offers a common language through which we can share our experiences with others and explore and learn from theirs. Critical to science supporting diversity in this way, however, is that the goal of its application be understanding and connection. Through greater respect for other experiences and transparency around our own, we can discover individually and collectively, with help from science, the ways we differ, the ways we don't and ultimately that we are all connected as parts of something greater.

In my own work to support and deepen diversity in science, conservation, and elsewhere, I often find that understanding the concepts laid out above does not necessarily reveal how to apply them in practice. Over the years a few general principles have emerged as helpful in guiding me in this work. I offer three of them below in the hopes they can help concretize some of this for others as well:

1. Don't act on your own—Diversity begets diversity: When developing a program, initiative, or even a simple dialogue around diversity, it can be tempting to take our own ideas about how it could look or function and implement them—resist this temptation. Instead, reach-out to a diverse suite of people, engage them, interview them, invite them to become our wise counsel and to guide us. Ideally this engagement begins by allowing them to frame their own understanding of the topic so that even our core questions may shift and change as the dialogue moves from one constrained by our own perspective to one emergent from many perspectives. Within an organization, this may take the form of beginning with a group of diverse people who are empowered to guide change, but who then reach outside the organization to engage other perspectives, experiences and skillsets to broaden the dialogue even further.

2. Embrace change, communicate, be vulnerable, and trust—Increasing diversity in an organization, a community, a field, a discipline, or any context will invariably change that context in ways that are unexpected and can be scary. Throughout the process, it's important that we work to be open to the change. This is not easy, but some of the friction of change can be abated if we become vulnerable and communicate our fears as they arise. Even then, operating in a diverse system with new unfamiliar parts requires a great deal of trust. Rather than feeling comfortable because the system is fully known and gives us a sense of control, we must trust, relinquishing control of a known outcome for the possibility of a greater outcome beyond any one individual expression, achievable only via diversity.

3. The container matters—Diverse communications, interactions, and spaces while often inherently deeper and richer can also be more vulnerable, exposing, triggering, and at times uncomfortable. Navigating them effectively takes time, practice, and often some fundamental changes and increased attention to the “container” (i.e. the intention, style, format, and venue) through which we engage. Some of the things that can be helpful in creating a strong and effective container include: a) neutral facilitation with expertise in diverse engagement, b) attention to and valuation of the emotional understorey of the engagement and experience of the participants, c) inspiring, grounding contexts (i.e. natural or informal settings) that support participants feeling more relaxed and less pressure, and d) a structure for the discussion and dialogue that gives everyone equal space and time to share, to be seen, and to be heard without pressuring them to do so.

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In these writings, I reflect on my early life experiences that helped elevate me to find my love for the mountains and its ecology.

While I have not encountered intentional behaviors that would lead to bias, in developing a more diverse racial culture I am reminded through my high school and college experiences that connections to nature and mountain environments are not well-developed for some first-generation Americans whose families

focus on other aspects of life productivity. As a result there is a lingering self-imposed bias during one's early life that results in a lack of exposure to new disciplines, places, and activities. These lack of exposures and mentor-guided career experiences by one's upbringing can be overcome with specialized and targeted programs that attract new diverse cultures into a field. Such targeted programs allowed me to examine a new sense of place and in my case, select a career in this place we call the mountains.

Born and raised in Oklahoma and a handful of summers in India with my extended family, I am first generation Indian-American whose family didn't have vacations in nature like other non-first-generation families. As such, I had little formal contact with nature during my youth, other than mowing lawns (so connecting with "human-created" nature) or walking along the modified creek behind my house with friends. After my senior year, I had an opportunity to participate in a high school diversity internship with the Oklahoma Biological Survey's Natural Heritage Inventory. Little did I know at the time, this few months' work experience would introduce me to the beautiful plants of the playas and prairies of Oklahoma. The directed mentorship of individuals would begin my interest in exploring the natural world.

During college at UC Davis, I explored internship opportunities in traditional fields that a first generation Indian-American might consider as career path (e.g. medicine, engineering). Studying overfed rats for medical nutrition studies (summer after my freshman year), however, did not resonate with my heart although it did connect me with living things, at least in cages. This innate connection, through biophilia, as EO Wilson coined, was my first realization that I am deeply connected to the living animals around me. During my sophomore and junior summer holidays I engaged in a series of opportunities that would create a deep connection with mountain environments and the living creatures within them. By serendipity I learned about and signed up for a summer field studies class through UC Santa Cruz's Sierra Institute. Backpacking and camping for 2 months in the Sierra Nevada, I learned how to navigate through the wilderness with

map and compass (there was no GPS then), exercised my natural history observation skills, learned about medicinal plants and ethnobotany, and how to go to the bathroom in the woods! To a first-generation kid from Oklahoma, this was a mind-opening experience. My class mates were mostly seasoned campers and only two of the dozen or so students and instructors were non-white. In some way, I was in conflict with the experiences from my culture and childhood but in another way I found a sense of place in the mountains. The following summer, I applied for a US Department of Agriculture's Rocky Mountain Experiment Station minority internship. This paid internship (including travel) to work in the Magdalena mountains of New Mexico to mark and track bats using radio tags connected my love for biology with the natural connections I was developing in the mountains. In short, the internship experiences that targeted minorities or classes that were more directed in learning gave me the opportunity to explore nature (and my inner-self) in fundamentally different way than would be afforded otherwise.

This reflection is a story of how I developed my mountain connections at an important stage in my life-development path. I clearly benefited from targeted and funded programs that improve diversity in the sciences, ecology and management of public lands, or through hands-on learning experiences that allowed me to discover my sense of place. It is important for our institutions (e.g. government, nonprofit, academic) to promote discourse related to diversity in the mountains, what hinders this diversity, and how we can improve it. Targeted programs and directed mentorship are one tool to improve this discourse and provide experiences for those who would not otherwise experience the mountains at an early age. There is a falsehood in many recently immigrated cultures that one cannot have a viable, financially successful career in the environmental sciences. Funding programs that target minority cultures that promote work-based experiences demonstrate the potential viability of environmental sciences as a career path. Recruiting from these programs for permanent positions in government and academia can generationally move our society towards not having to ask the questions or address this issue of diversity in the future.