

# Environmental justice and ecological blind spots



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PhD Advisor Dr. Bette Loiselle



National Park Service leadership team under Director Robert Stanton



Diverse Environmental Leaders group

# What is my academic science identity?

High elevation ecologist

Research areas in alpine systems: Yellowstone National Park, Huascarán National Park, Beartooth Plateau and Grand Teton National Park





# Black kid from Brooklyn New York

## Ranger Rick's NATURE CLUB

RANGER  
GILLIAN BOWSER  
71 JORALEMON ST  
BROOKLYN N Y.

11201

IS A MEMBER OF RANGER RICK'S NATURE CLUB, LEARNING  
ABOUT NATURE AND ITS IMPORTANCE TO PEOPLE.

EXPIRATION DATE

MEMBERSHIP NUMBER

MARCH 1971

RR533092

*Ranger Rick*

National Wildlife Federation



# Now identity is: **Black from Brooklyn** (BB2)...but..

- Started at Yellowstone National Park on a **backcountry** campsite team inventory
- Studied organisms from Bison to **Butterflies** and Desert Tortoises in 8 different National Parks from California to Alaska
- Work in remote areas with a lot of **bears**
- **Backpacked** to find rare animals and birds with **binoculars**



# My identity or pronouns: **Black Biologist** and **Butterflyer** with **Backpack**, **Binoculars**, **Birds** and **Bear** spray from **Brooklyn** or **BB8**!



*“Creating my identity in science means intersectionality as I cannot separate out different parts of my multiple identities...”*



# Blacks in Natural Resources



# Why all the Diversity, Equity and Inclusion (DEI) discussions?

*“Individuals are not able to  
bring all of themselves to  
the research enterprise...  
hindering both the  
individual and the  
enterprise.”*



*Quote: Dr. M. Brandon Jones, National Science Foundation*



# Ecological blind spots

Why is the environmental science enterprise so under-diverse?

Is it the students (a recruitment problem), the discipline (a retention problem), or a systematic blindness that impacts both.

Does a focus on Justice Equity Diversity and Inclusion (JEDI) solve this blindness?



# Ecological Blind Spots: Why does lack of diversity in the ecological scientific enterprise matter?



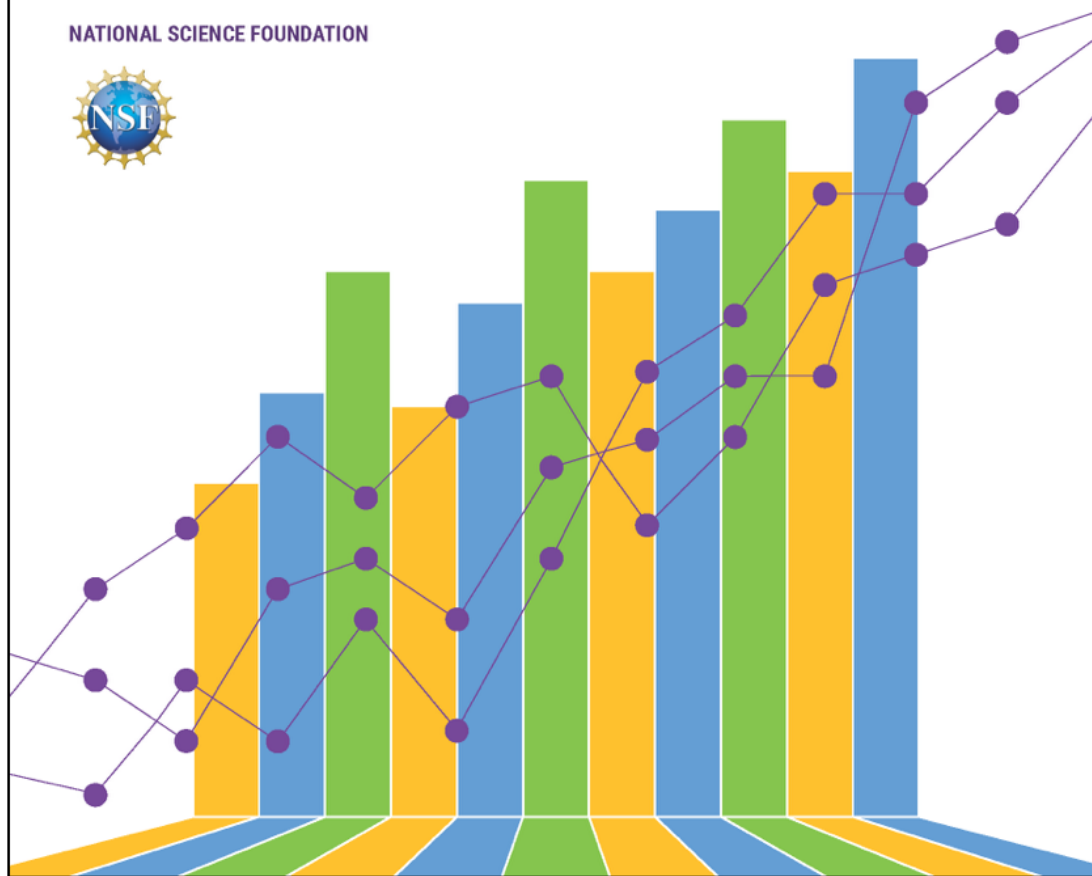


# The report

## 2019 | WOMEN, MINORITIES, AND PERSONS WITH DISABILITIES IN SCIENCE AND ENGINEERING

NATIONAL CENTER FOR SCIENCE AND ENGINEERING STATISTICS  
DIRECTORATE FOR SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES

NATIONAL SCIENCE FOUNDATION



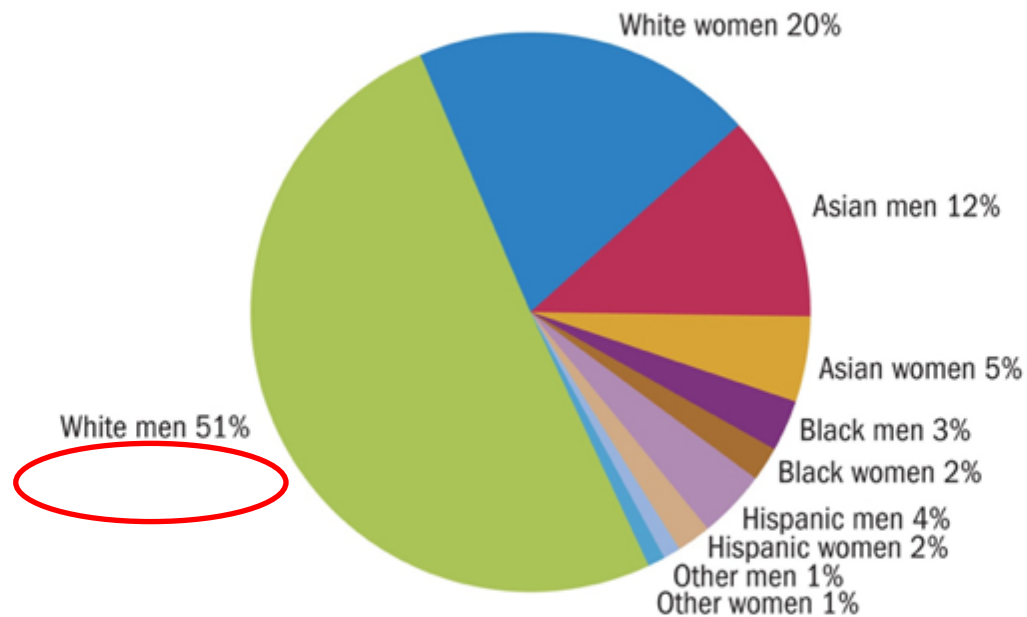
# Who is underrepresented and what are the numbers?

- Underrepresented minorities in the sciences are U.S. Citizens who identify as African American, Hispanic, Latinx, Native American, Native Hawaiian and Pacific Islanders.
- Asian Americans including ethnic heritages from China, Japan, India and associated countries (Thailand, etc.) are not considered URM in the sciences.
- NSF and AAAS tracks persons with disabilities but they do not track sexual orientation.



2013

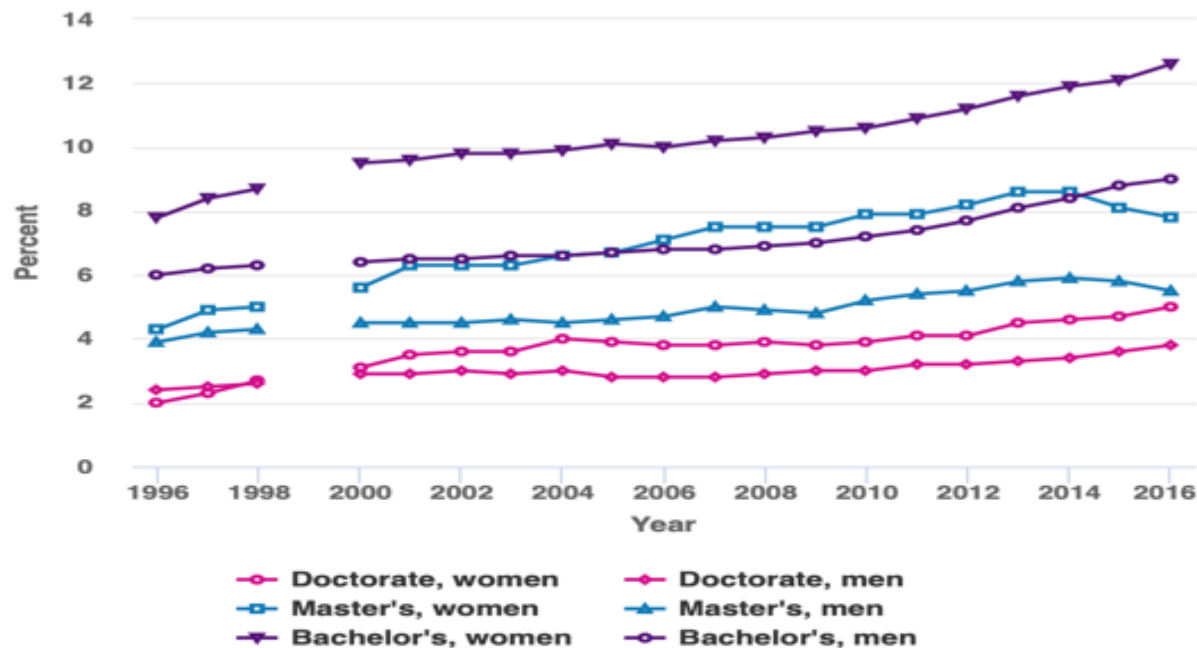
## Scientists and engineers working in science and engineering occupations: 2013



NOTE: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.



# Science and engineering degrees earned by underrepresented minority women and men, as a percentage of all S&E degrees awarded of each degree, by degree type: 1996–2016



S&E = science and engineering.

#### Note(s):

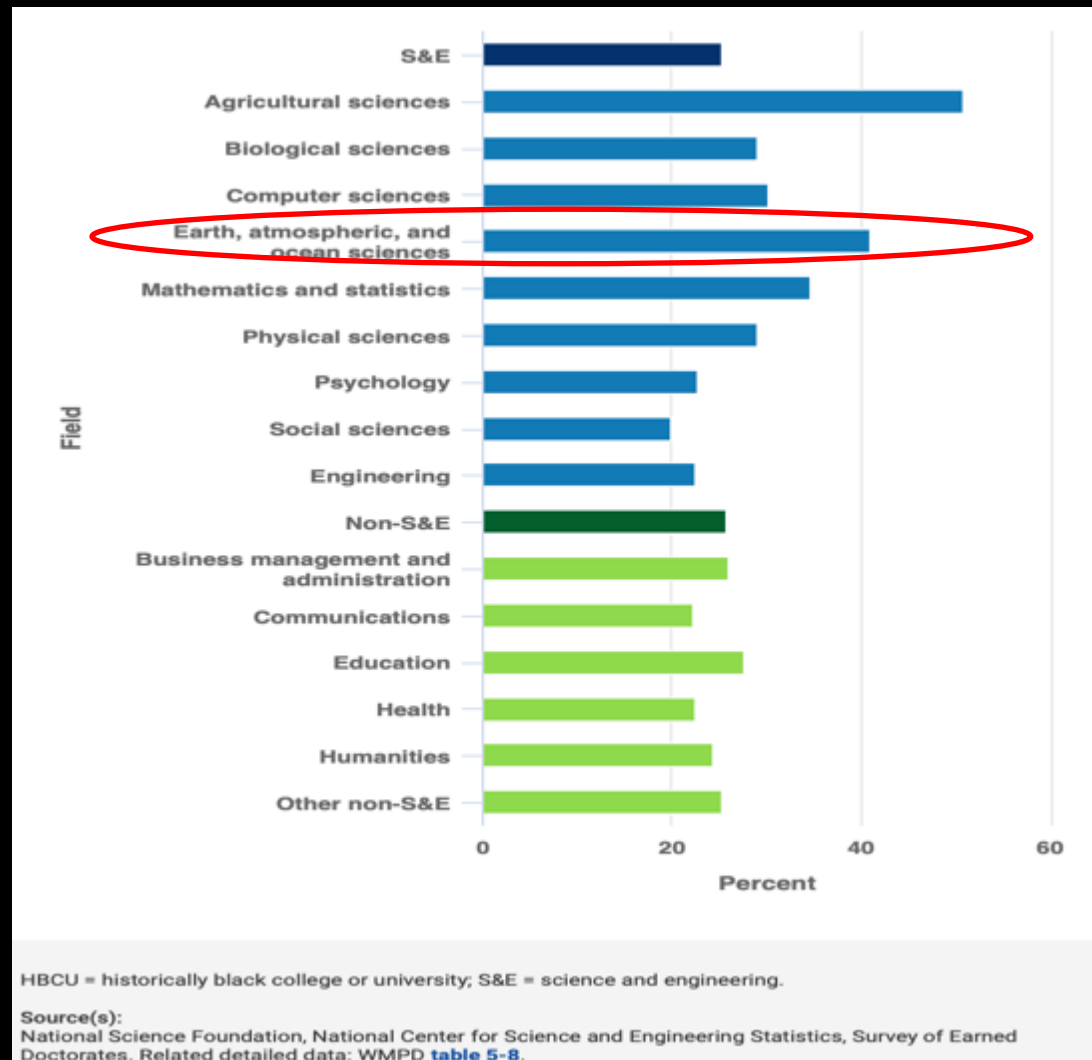
Data not available for 1999. Underrepresented minority groups include black or African American, Hispanic or Latino, and American Indian or Alaska Native. Data are for U.S. citizens and permanent residents only.

#### Source(s):

National Science Foundation, National Center for Science and Engineering Statistics, special tabulations of U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey, unrevised provisional release data. Related detailed data: WMPD [table 5-1](#), [table 5-2](#), [table 5-3](#), [table 6-3](#), [table 6-4](#), [table 6-5](#), and [table 7-7](#).



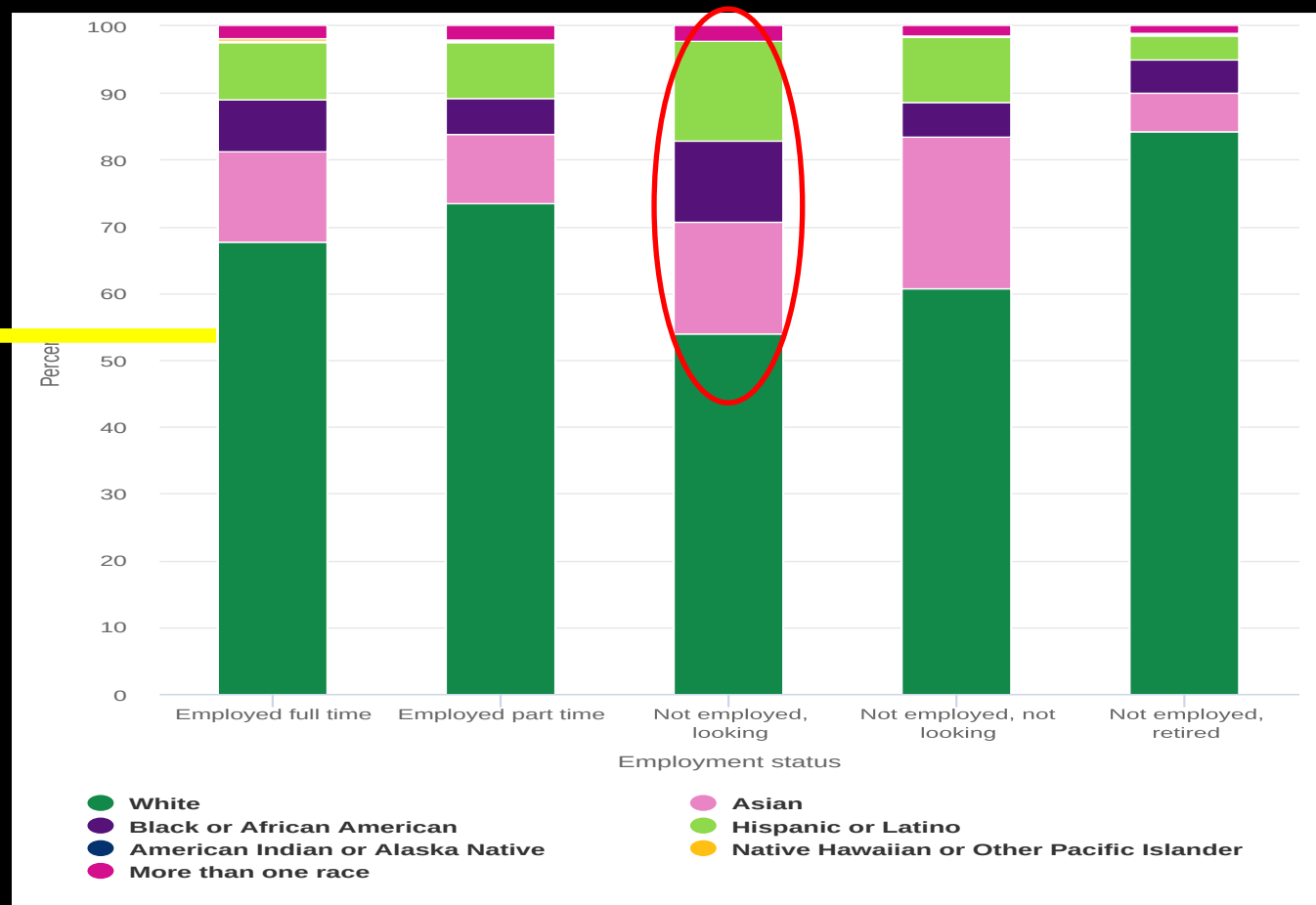
# Black or African American doctorate recipients with HBCU baccalaureate origins, by field: 2013–17



# Employment status of scientists and engineers, by ethnicity and race: 2017

National Center for Science and Engineering Statistics | NSF 19-304

20% WHITE  
FEMALE IN  
2013;  
APPROACHING  
40% WHITE  
FEMALE IN  
2017. (2020  
data shows  
females at over  
50%)



# What about intersections of race and gender?

- The overall numbers of women of color are so low that neither NSF nor AAAS can significantly analysis the individual groups
- White women in the same sciences have increased dramatically. An estimated 60% of graduate students in the earth sciences today are white or Caucasian women.





# TOTAL numbers

- Agriculture (livestock, rangeland, crop, etc.) and Natural Resources (including wildlife, conservation biology, ecology, etc.) in 2018 graduated 763 doctorate degrees Nation wide. 45 were black.
- Geosciences and atmospheric sciences graduated 760 doctorate degrees. 11 were black.
- Tashiana Osborne from Scripps Institute will be one of fewer than 5 black female atmospheric scientists NATIONWIDE to graduate in 2021



# The double bind for women of color

The trend for women of color is not the same as for white women with almost no increase in representation in the environmental sciences since 2004

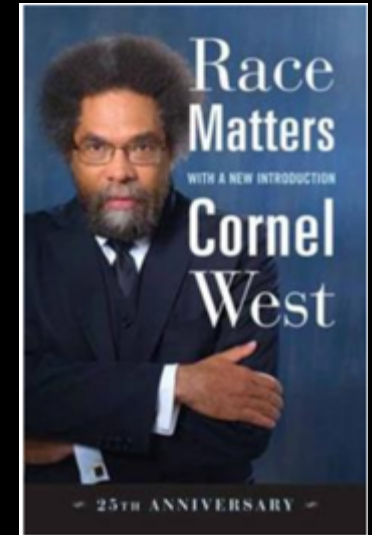
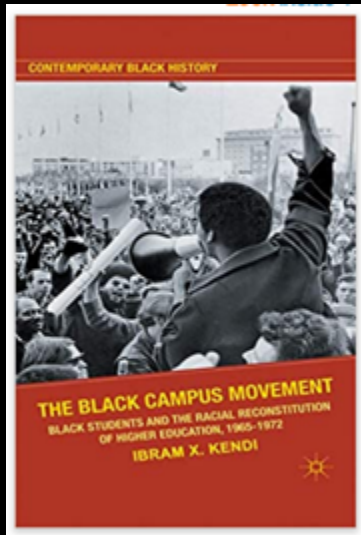


# Why don't black people like the earth sciences????

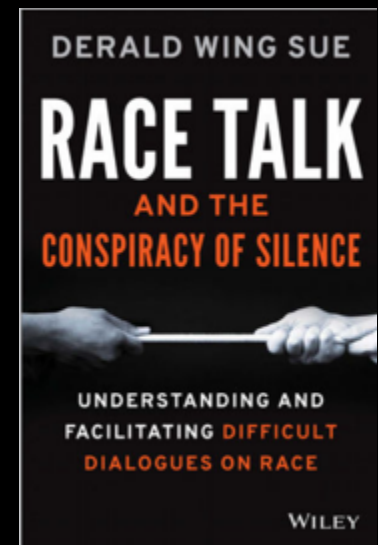
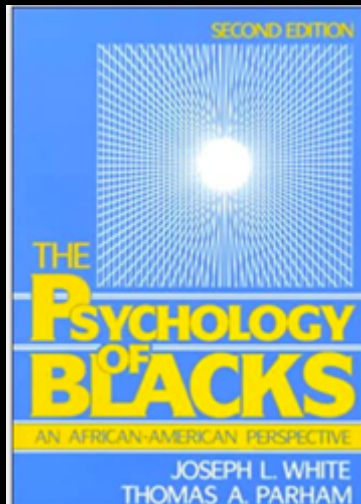




# Ecological blind spots and Birding in Central Park



Civil rights, policing policies  
Black psychology and Black activism  
Educational policies and achievement gaps  
Stereotype threat, microaggressions  
Affirmative action, university admissions,  
and academic hiring—all are connected to  
lack of diversity in environmental fields



## J. Drew Lanham said it best in “9 rules for the black birdwatcher “(Orion Magazine 2013)

- **1. Be prepared to be confused with the other black birder.** Yes, there are only two of you at the bird festival. Yes, you’re wearing a name tag and are six inches taller than he is. Yes, you will be called by his name at least half a dozen times by supposedly observant people who can distinguish gull molts in a blizzard.
- **2. Carry your binoculars — and three forms of identification — at all times.** You’ll need the binoculars to pick that tufted duck out of the flock of scaup and ring-necks. You’ll need the photo ID to convince the cops, FBI, Homeland Security, and the flashlight-toting security guard that you’re not a terrorist or escaped convict.
- **3. Don’t bird in a hoodie. Ever.**
- **4. Nocturnal birding is a no-no.** Yeah, so you’re chasing that once-in-a-lifetime rare owl from Outer Mongolia that’s blowing up your twitter alert. You’re a black man sneaking around in the nether regions of a suburban park — at dusk, with a spotting scope. Guess what? You’re going to have some prolonged conversations with the authorities. Even if you look like Forest Whitaker — especially if you look like Forest Whitaker.

Social justice  
Factors  
identified by  
diverse  
ecologists as  
affecting their  
professional  
development

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Field experience as “rite of passage”

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Sense of belonging to a group and the outdoor culture

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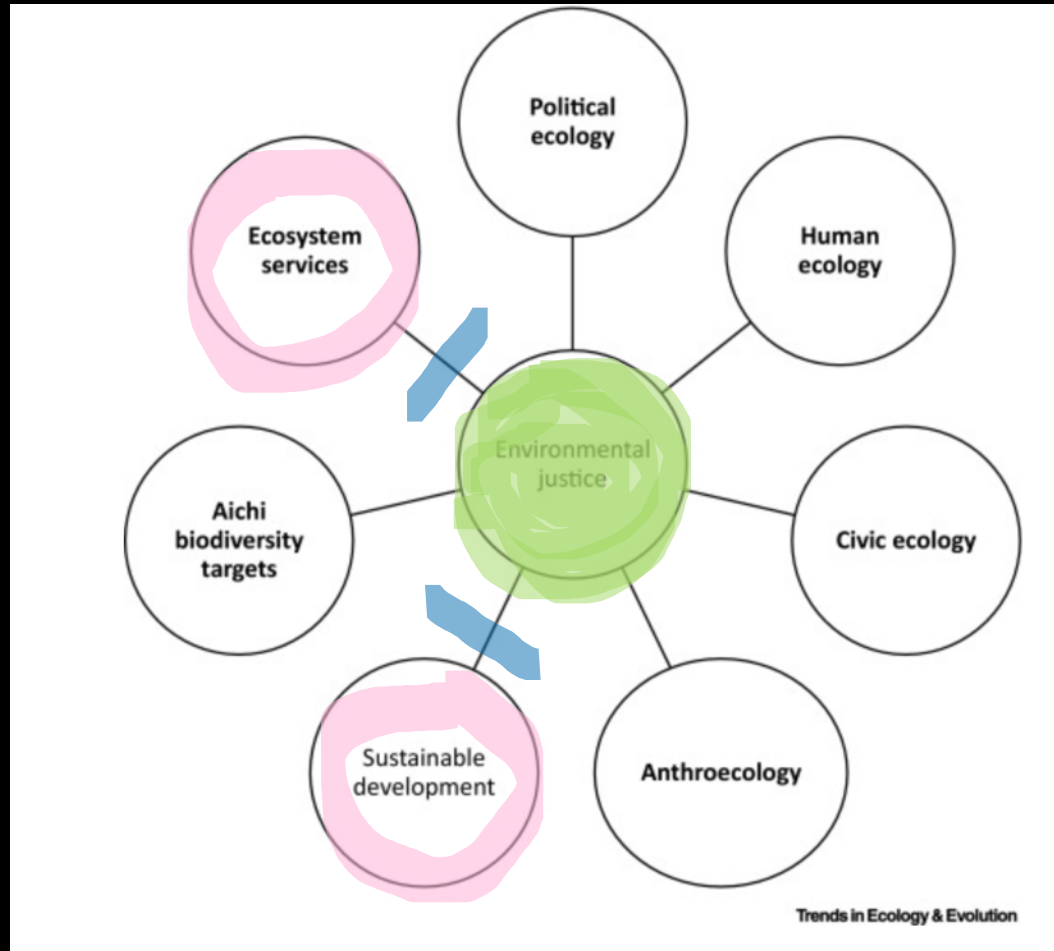
Sense of place in ecology instruction

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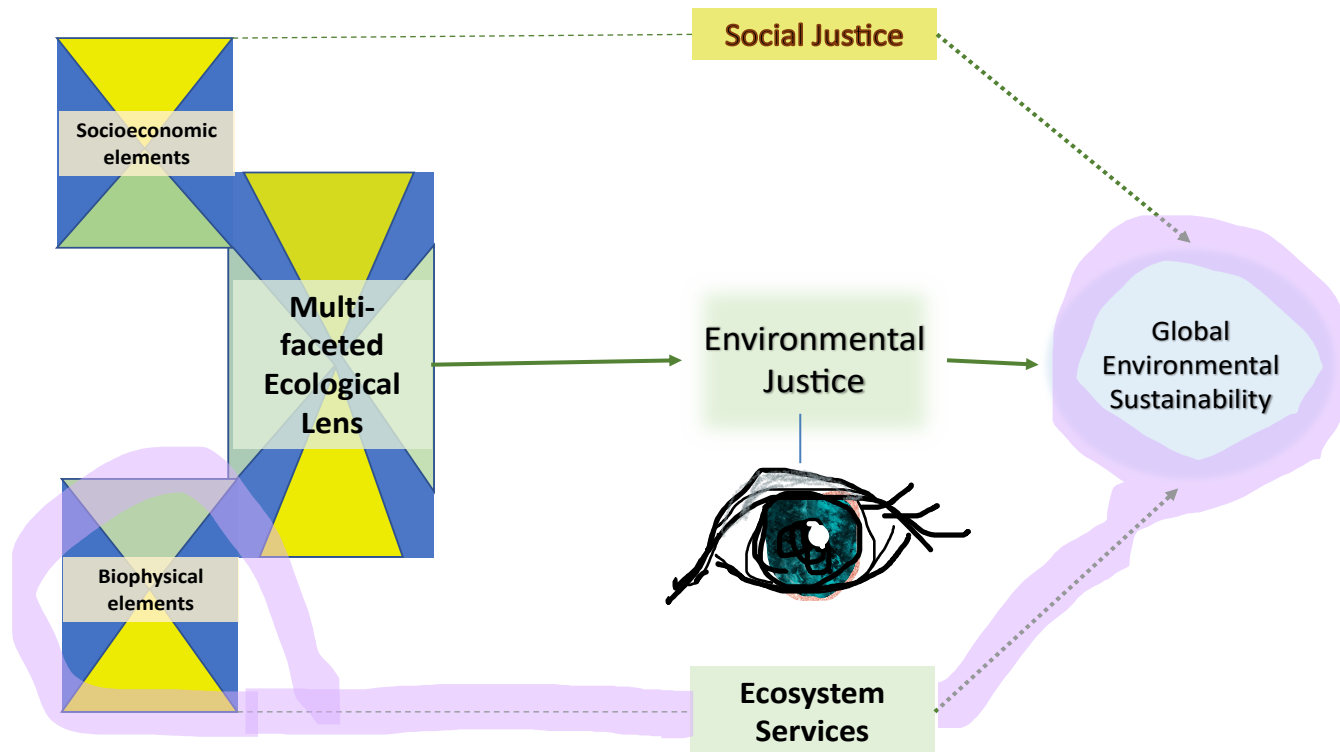
Identifying as a scientist or field ecologist



# Inequality in the environment



# Unsustainable Inequalities: Ecological blind spot to social justice research



# The creation of science knowledge within the science enterprise

- What do we decide to study?
- Where do we study?
- What are the broader impacts of our research
- Who benefits?



PhD Atmospheric sciences, PhD botany, PhD ecology, PhD Mathematics



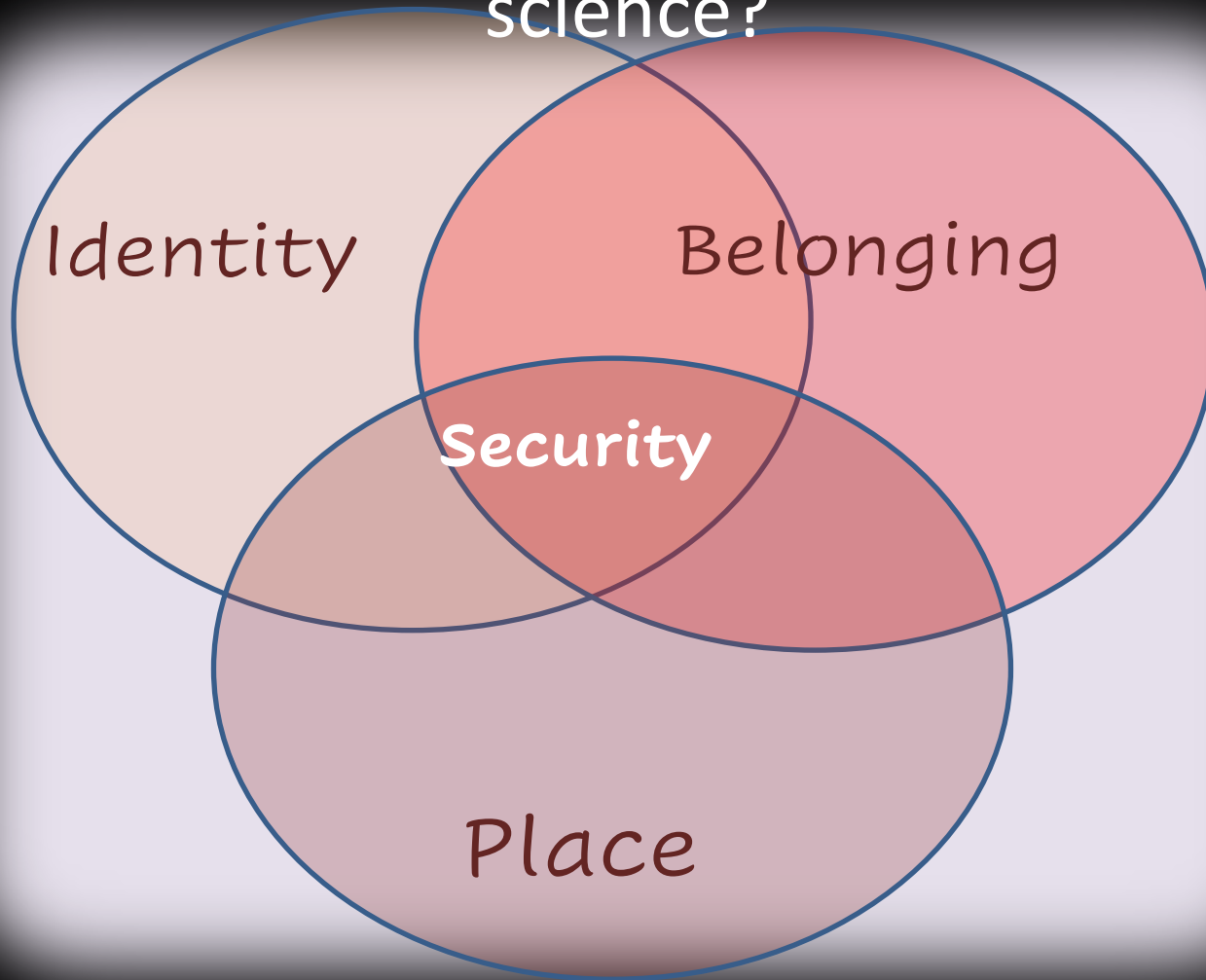
# Systematic racism in the field experience

Lack of performance or persistence in environmental sciences as been attributed to the following:

1. Black people don't go outside,
2. Hispanic people don't like the cold,
3. "urban kids " (code for black or brown) aren't exposed to enough nature,
4. Black people can't wash their hair
5. Hispanic people need bigger picnic tables, and
6. Different abilities cannot participate.



What are the intersections around the student health and wellbeing and their participation in science?



# VOICES

## VOICES

Two-year NSF EAGER project exploring the importance of voice in engaging BIPOC scholars in the Earth Sciences Collaborative partnership:

### Earth Science Team

1. Dr. Wendy Smythe, University of Minnesota Duluth
2. Dr. Gillian Bowser, Colorado State University
3. Dr. Lisa White, University of California Berkeley
4. Dr. Chris Atkinson, University of Cincinnati

### Social Science Team

5. Dr. Nina Roberts San Francisco State University
6. Dr. Rick Harvey, San Francisco State University



# VOICES

...awakening a greater awareness of cultural knowledge and best practices in diversity, equity and inclusion related to: a sense of *Identity* as a scientist; *Belonging* within the discipline; acknowledgements of the cultural connections to *Places*; and a sense of *Security* and safety as an underrepresented person in field and classroom settings.



# Identity

*Identity* can also be connections to a professional discipline such as self-identifying as a scientist.

What does a scientist look like?

Returning voices that may have been lost at the professional level (imposter syndrome) or superimposed with other identities that negates the individual, is one step to remove such barriers.



# Belonging

*Belonging* as a scientist and respected member of a group brings URS relief from the “impostor syndrome” and is tied with *Identity* as measures of persistence in a discipline or academic field (Smythe et al. 2020).

Belonging can be characterized by individual declarations of being a member of a group, discipline or project; while lack of belonging is often situational and captured by concepts of “otherness”



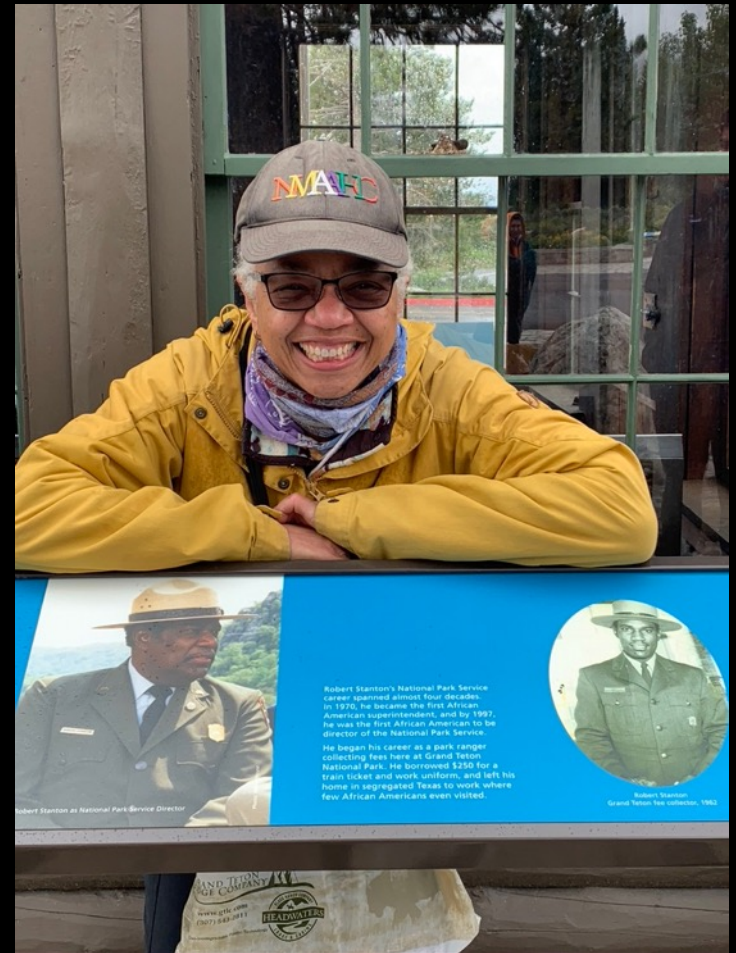
# Place

The importance of understanding sense of place is reflected not only in the ownership but to the spiritual, historical and cultural connections with a particular place.

Landscapes have culture and that connection to culture and resident people can be elucidated by understanding the importance of *Place* and Traditional Knowledge that is co-created with distinct protocols, histories, languages and community practice.



The importance of place such as Grand Teton National Park being the first park of the first African American Director of the National Park Service and the park celebrating that connection.





# Security

*Security* is synonymous with safety in some situations; mostly, these terms can have different meanings when viewed through the lens of culture, gender, race, sexual orientation and disability.

*Security* issues for race and ethnic minorities can also be situational especially during field experiences in different regions of the country or in situations where encountering the privilege and power of a dominant demographic can have detrimental and sometimes violent outcomes.



Security means safety but being  
minority...Never ever wear a hoodie  
while butterflying...




# Environmental Justice research is one ecological blind spot--why?

- Access to knowledge
- Access to Natural Resources
- Knowledge of Ecosystem mechanisms
- Resilience to impacts




# Ecological blind spots: JEDI or BEPI?




**Justice**

Dismantling barriers to resources and opportunities in society so that all individuals and communities can live a full and dignified life.



**Diversity**

All the differences between us based on which we experience advantages or encounter barriers to opportunities. Diversity isn't just about racial differences.



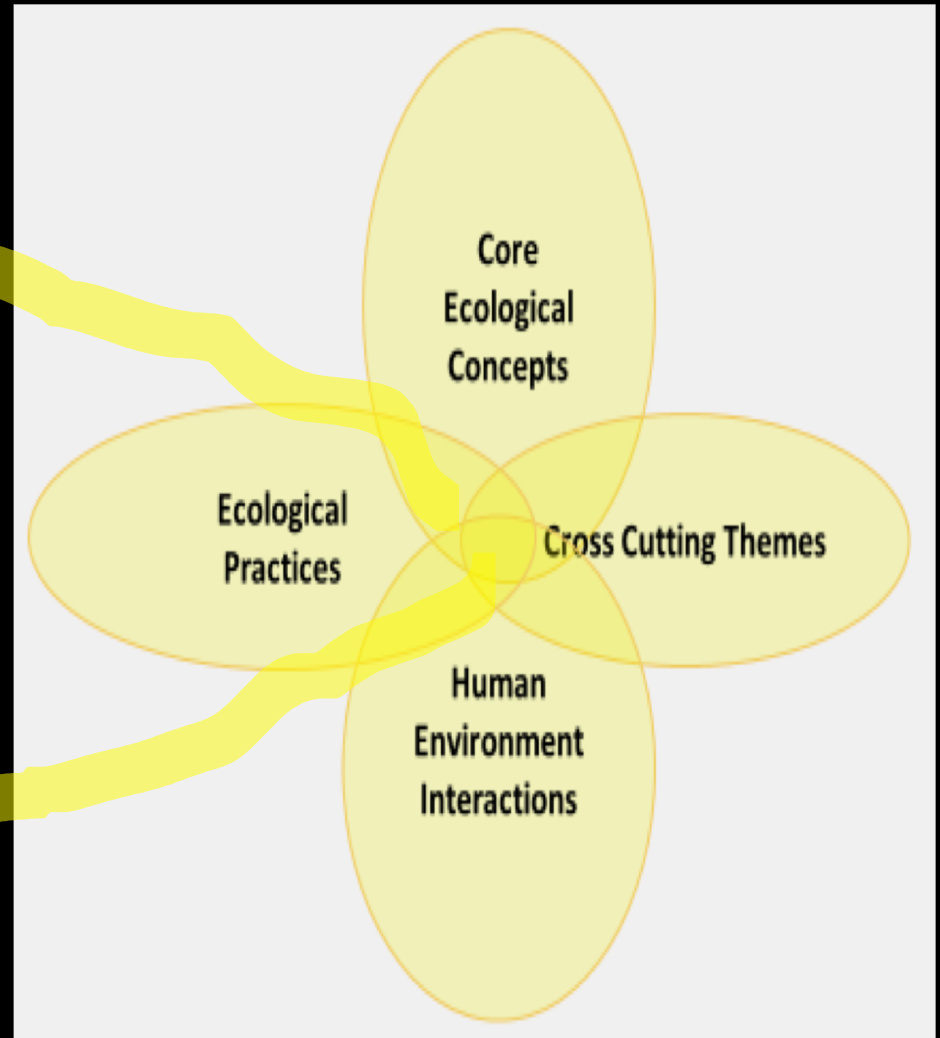
**Equity**

Allocating resources to ensure everyone has access to the same opportunities. Equity recognizes that advantages and barriers—the 'isms'—exist.



**Inclusion**

Fostering a sense of belonging by centering, valuing, and amplifying the voices, perspectives and styles of those who experience more barriers based on their identities.

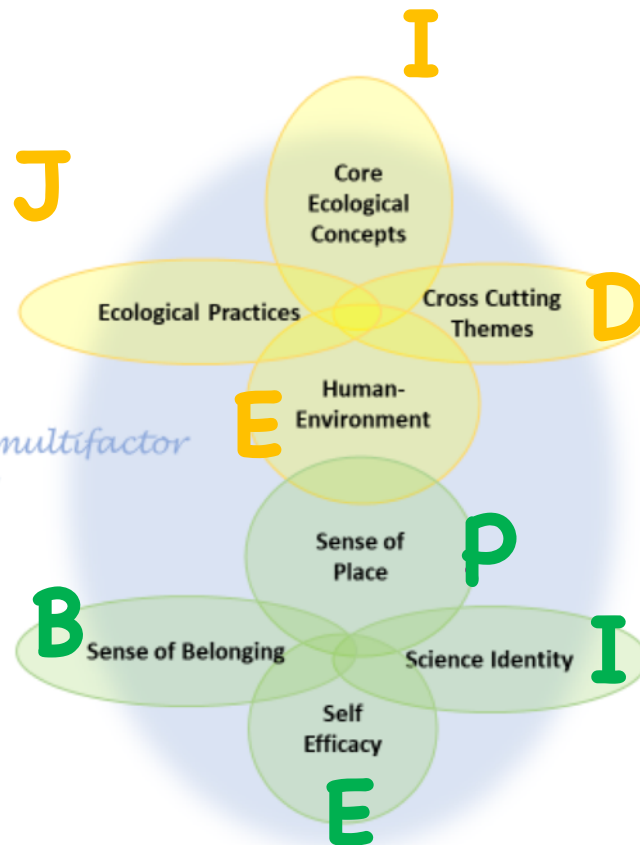




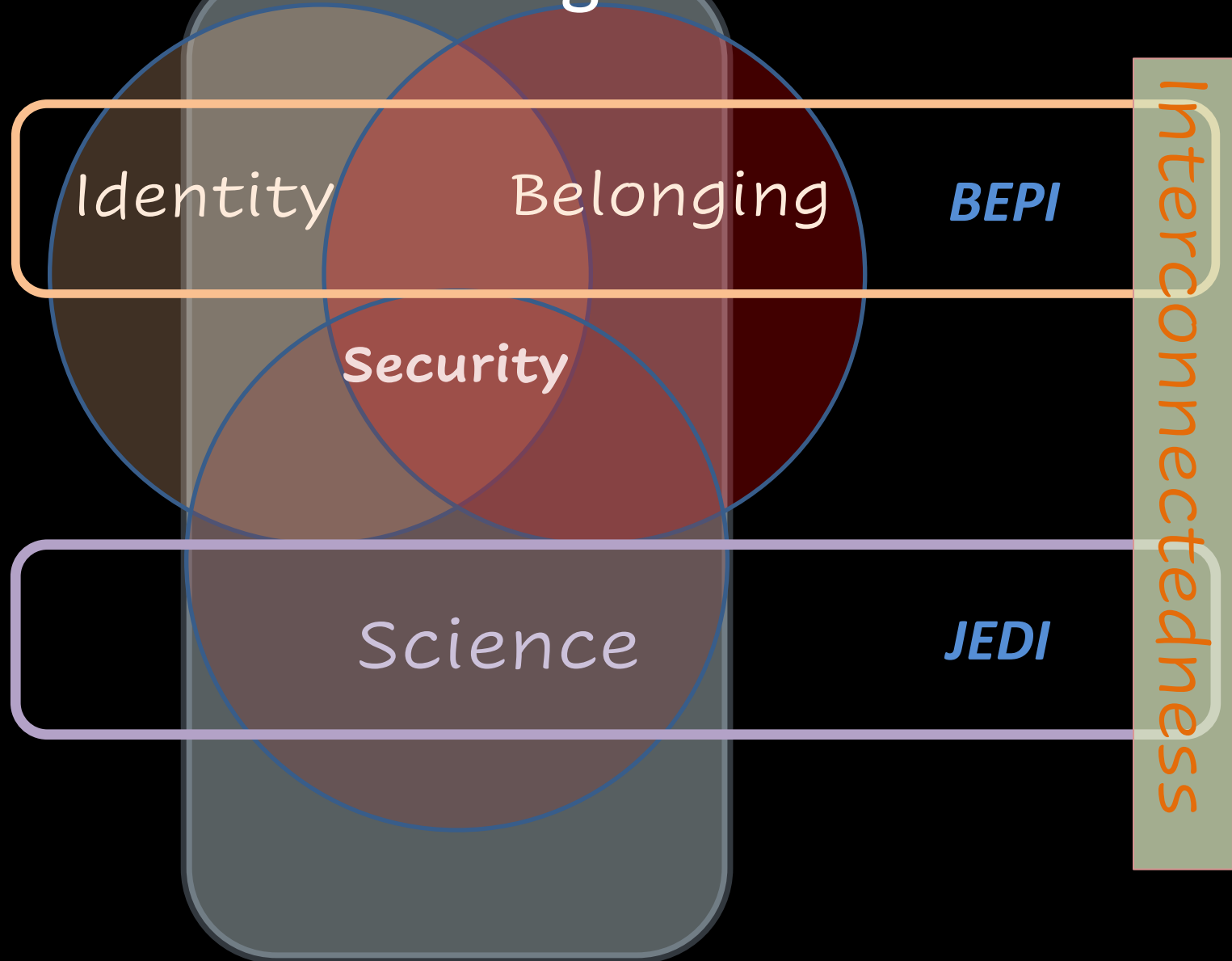
# Does the field experience in environmental sciences enhance JEDI or BEPI?



*field experience multifactor approach*



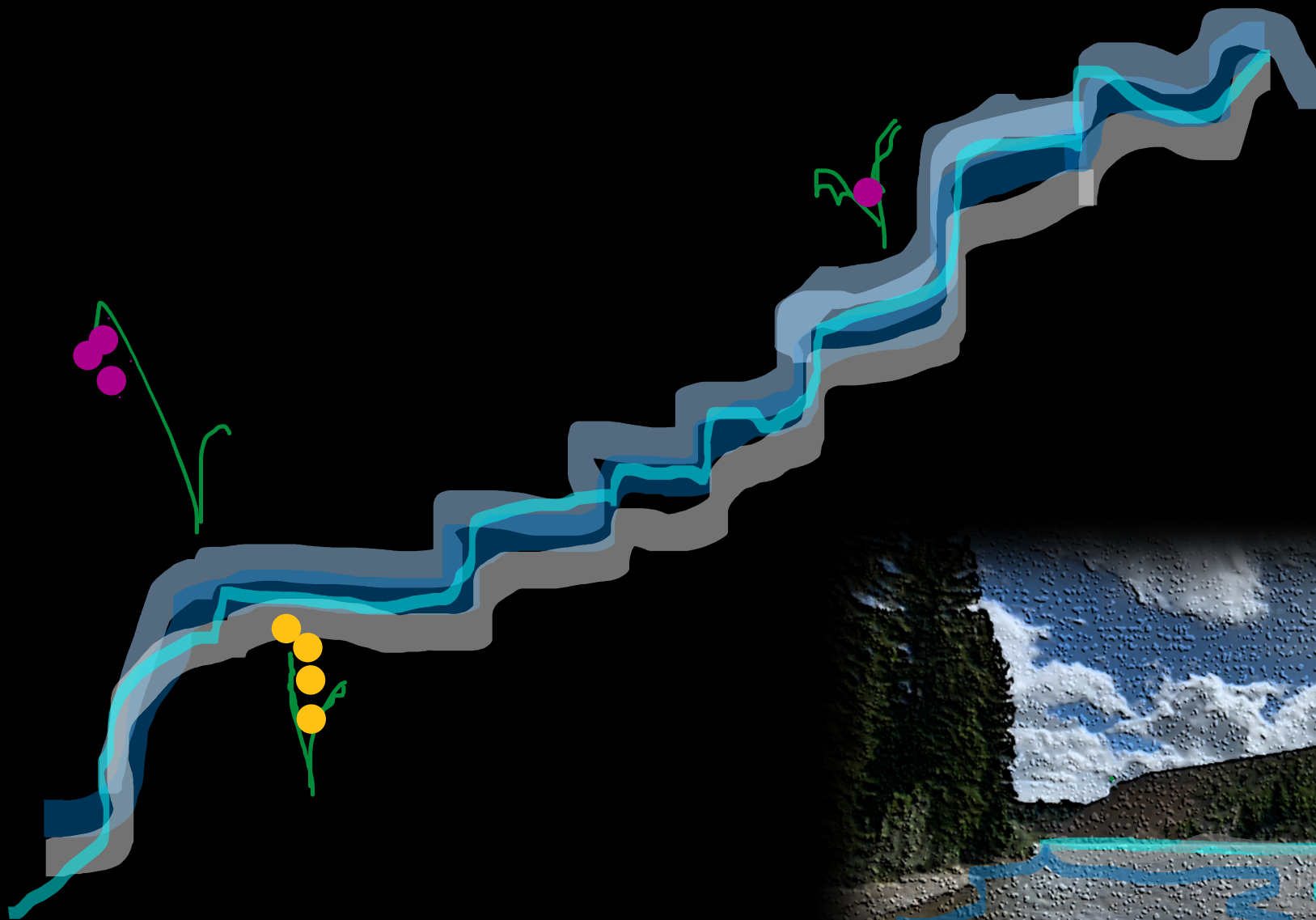
# Ecological blindness—a focus on the science and a disregard of the culture



# Summary: Ecological blind spots

- The science enterprise is guided by the culture perspective and should be representative of all cultures within society.
- Rethink how JEDI is approached within the Ecological disciplines. Is this really the right approach? BEPI+JEDI for Ecological Mindset.
- The language of landscapes is the language of culture. *Wade into the River...*

# *Wade into the River*





# *Wade into the River*

DARPA pipeline  
environmental  
pollution  
Water is life

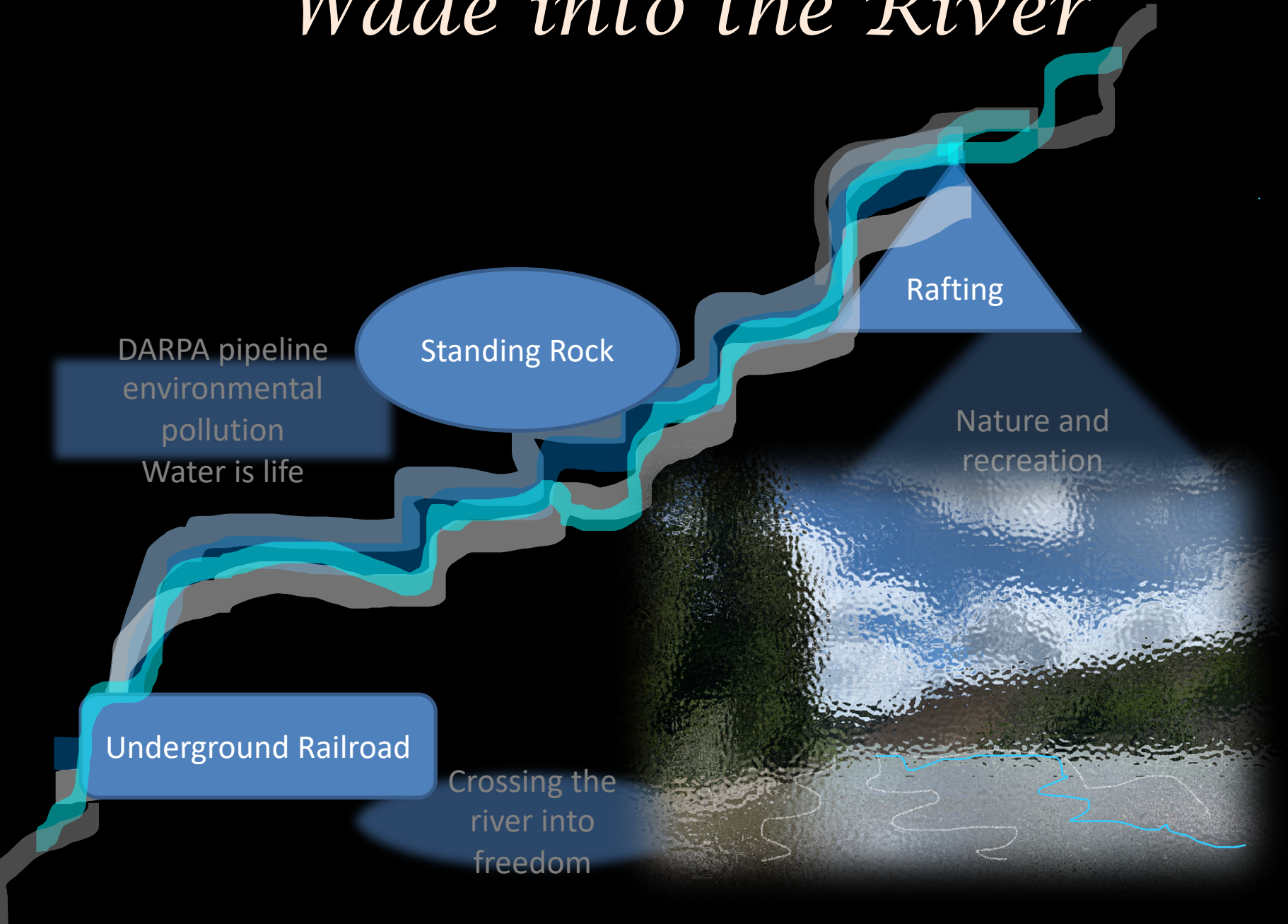
Standing Rock

Underground Railroad

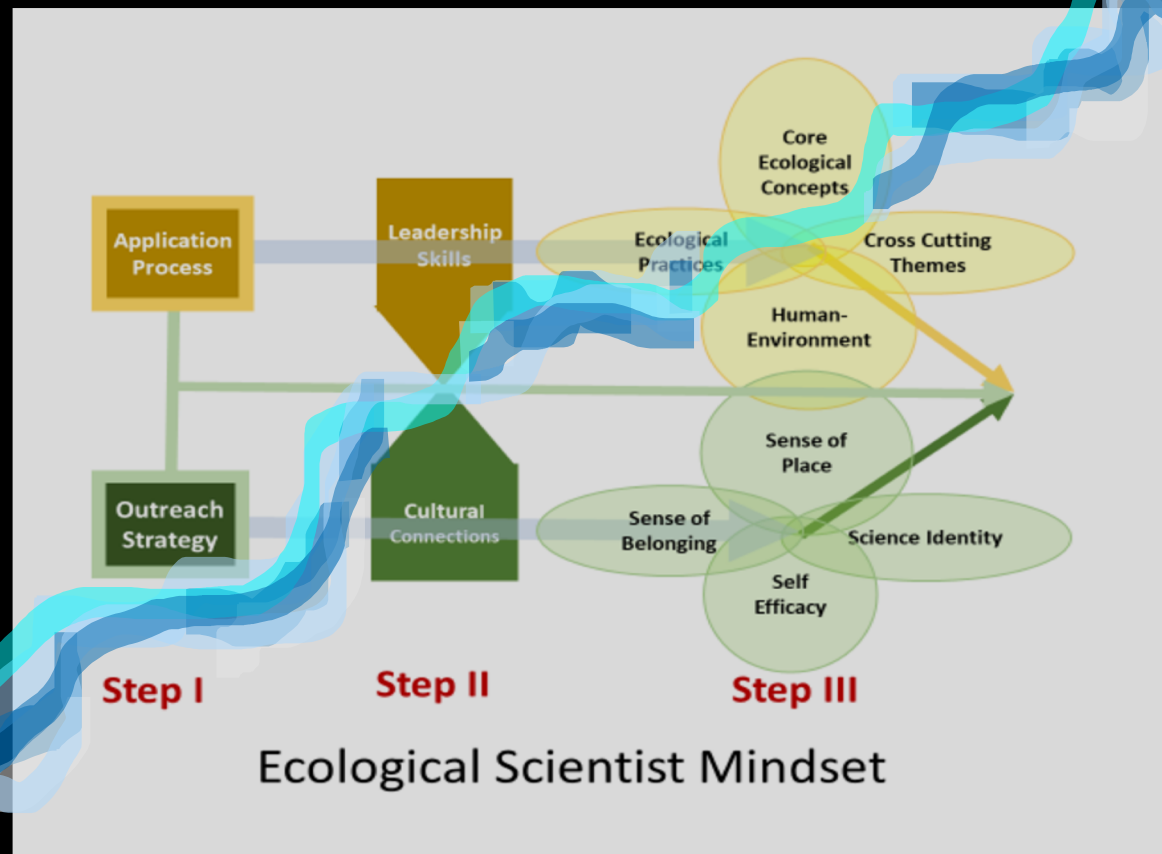
Crossing the  
river into  
freedom

Rafting

Nature and  
recreation



# Different ways of knowing a river: coding nature and culture into science Blending JEDI and BEPI



*“Stereotypes are not untrue but they are incomplete—they make one story become the only story”*

Chimamanda Ngozi Adiche 2009





# Thank You and Questions



Acknowledgements: The Pollinator Hotshots which includes the wonderful students from the Louis Stokes Alliance for Minority Participation in Science and the Rocky Mountain Science and Sustainability Network both funded by the National Science Foundation.