



Ecosystems, Equity, and Environmental Justice

Sonny Ramaswamy

Community Resilience and Equity
President



Overview

- Trends and Disparities
- DEIJ
- Historical and Extant Situation
- Opportunities
- Path Forward



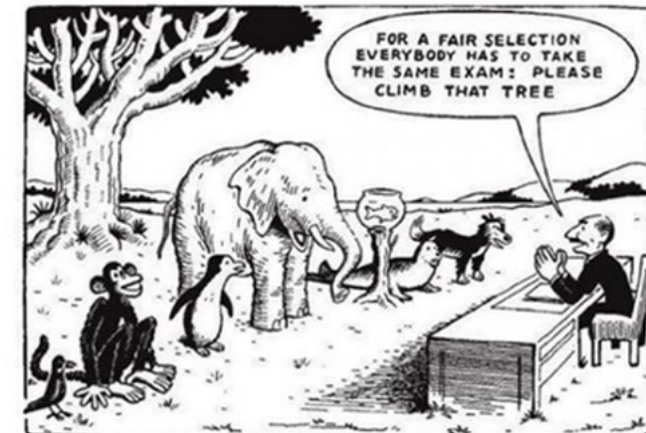
Societal Trends and Disparities

- Racial and class disparities
- Social injustice, hate crimes, conflict, protests
- Disparities in education, access, and social outcomes
- Resource disparities
- Contentious conversations and pushback about DEI and CRT
- Issues related to separation of Church and State
- Hunger, poverty, environmental racism, redlining, negative physical and mental health outcomes, shortened longevity
- Isolation, homelessness, mass incarceration, structural disparities, infringement on voting rights, hate crimes, violence

<https://deaturish.com/wp-content/uploads/2020/08/DSC0733.jpg>

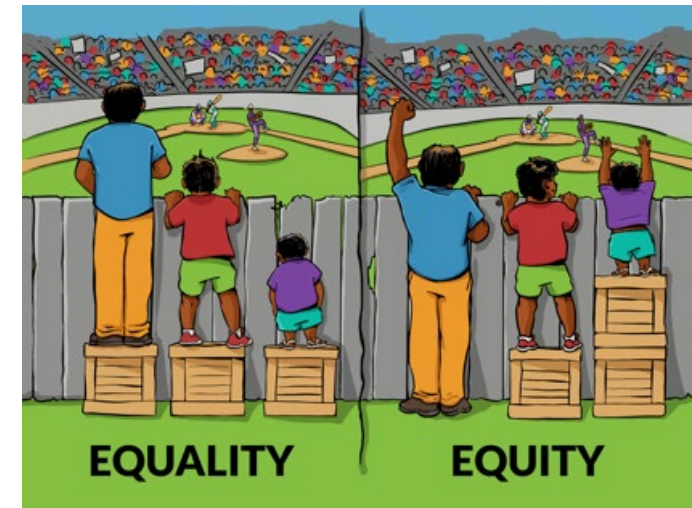
Diversity, Equity, Inclusion, and Justice

- Diversity: the practice of including or involving people from different racial, ethnic, social, and economic backgrounds and of different genders, sexual orientation, etc.
 - Statutory, economic, and moral imperative
 - Enshrined in State and Federal laws and regulations
- Equity: justice and fairness of policies
 - Rejected in Federal regulations
 - Societal costs
- Inclusion: behaviors and social norms to make people feel welcome, appreciated, and valued
 - Hallmark of humanity: “My brother’s keeper”



<https://inclusiveeducation.weebly.com/uploads/1/6/7/2/16724178/3159376.png?500>

Why DEIJ



- DEIJ is respect and fairness
- Social cost: the total **cost to society**
- Opportunity cost: **loss of potential gain** from other alternatives when one alternative is chosen
- Equity: justice and **fairness** of policies
- Justice: people must **receive** that which they **deserve**
- Equality: legal, moral, political **opportunities** afforded ALL people

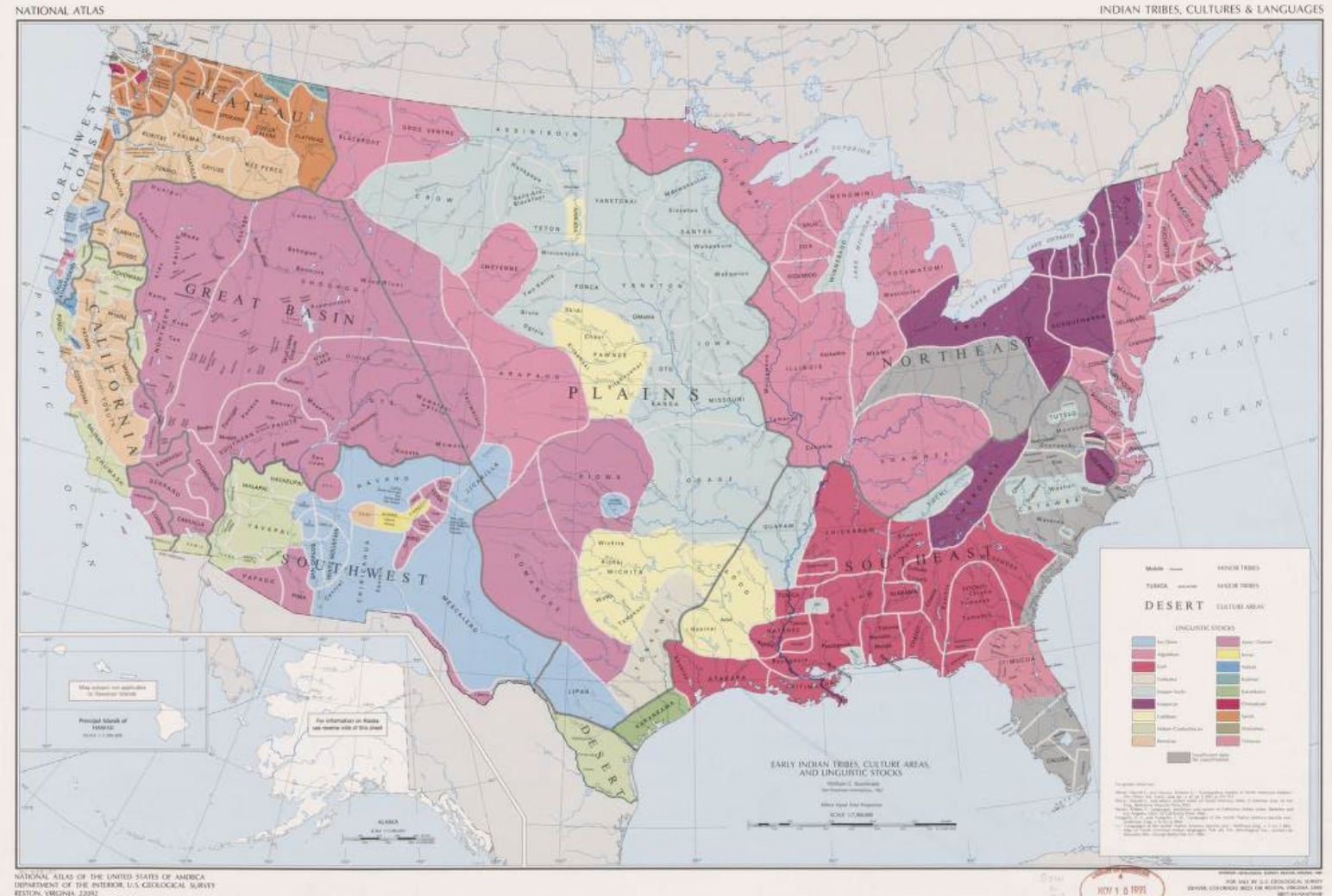
Equity in Ecosystem Services

- Inclusivity and collaboration in policy-setting and decision-making
- Recognition of diverse human and nature relationships
- Who benefits?
 - When, Where, and How?





Precolonial Tribal Territories

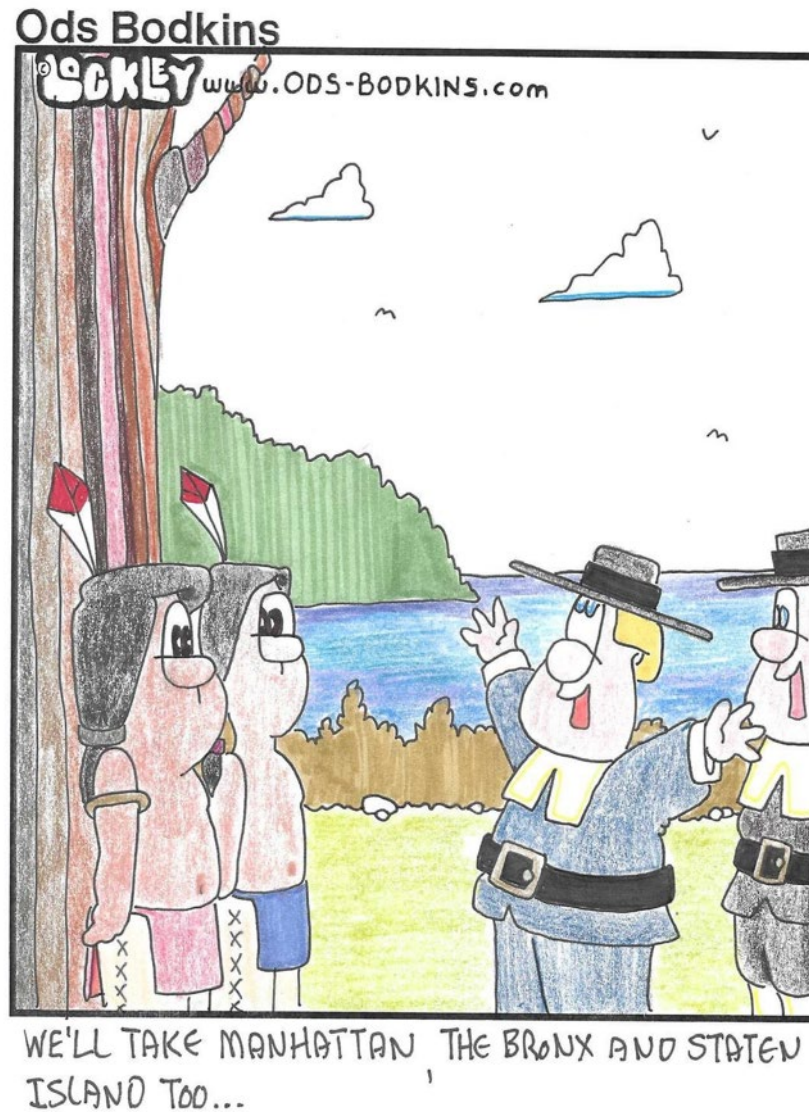


NATIONAL ATLAS OF THE UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

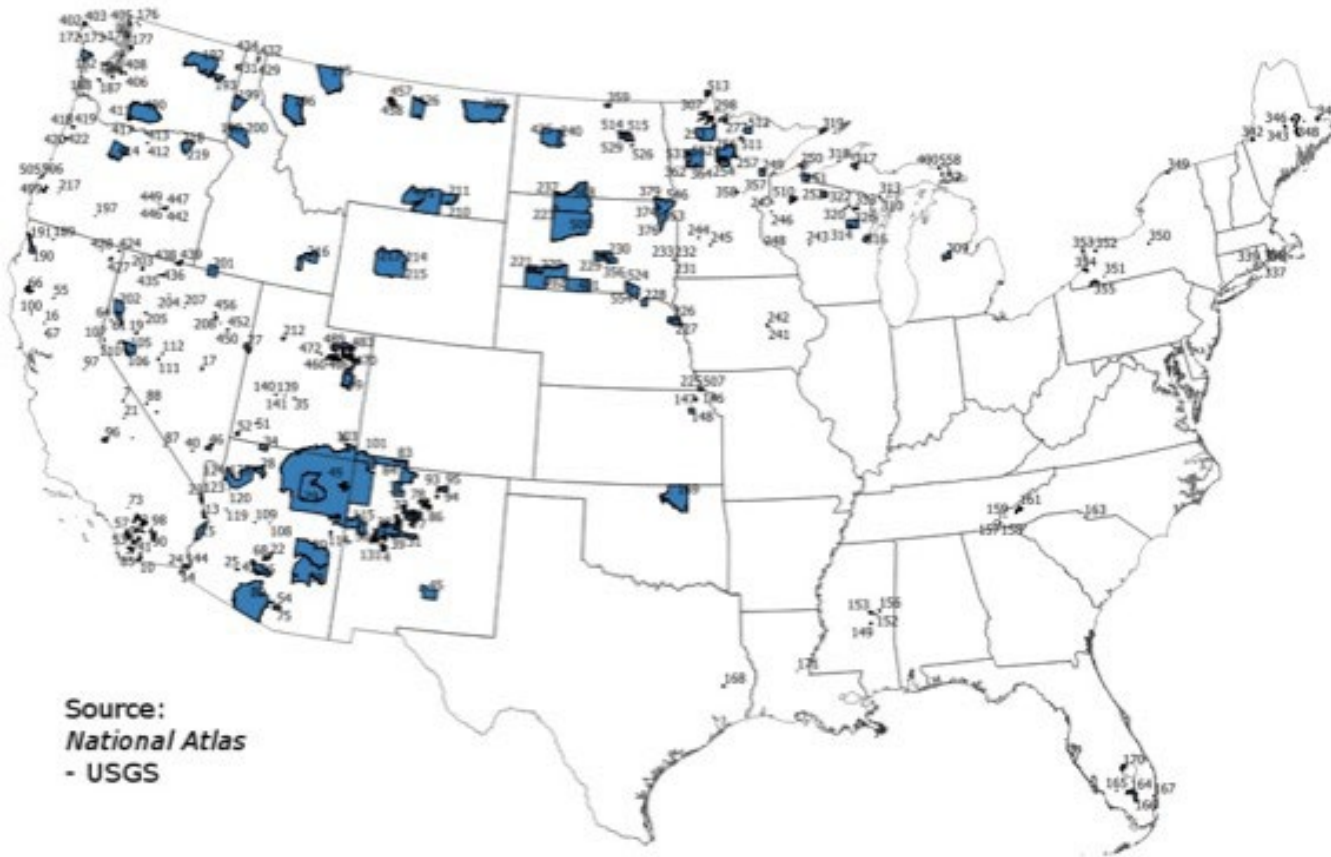
<https://www.loc.gov/item/95682185>
<https://www.loc.gov/resource/g3701e.ct003648v/>



Landgrab: Starting in 16th Century



Extant Continental US Native American Reservations



Source:
National Atlas
- USGS

- Total area of all reservations
 - 56,200,000 acres (22,700,000 ha)
 - Approximately 2.3% of total area of US
- First reservation: August 29, 1758

Toxic Release Inventory

TRI toxics are **chemicals**, such as lead and barium from coal mining or uranium and lithium, which can **cause** cancer or other **chronic human health effects**, significant adverse **acute human health effects**, and significant **adverse environmental effects**

<https://www.epa.gov/trinationalanalysis/tribal-communities>
<https://www.epa.gov/toxics-release-inventory-tri-program>

Quick Facts for 2022: Facilities on Tribal Lands

Measure	Facilities on Tribal Land	Facilities on or within 10 miles of tribal land
Number of Facilities that Reported to TRI	374	2,150
Number of Tribes	49	250
Waste Managed	249.9 million lb	1.29 billion lb
Recycling	86.4 million lb	441 million lb
Energy Recovery	39.3 million lb	164 million lb
Treatment	88.3 million lb	475 million lb
Disposal or Other Releases	36.0 million lb	206 million lb
Total Disposal or Other Releases	36.0 million lb	207 million lb
On-site	30.7 million lb	171 million lb
Air	12.6 million lb	64.6 million lb
Water	4.1 million lb	14.4 million lb
Land	13.9 million lb	92.3 million lb
Off-site	5.4 million lb	35.4 million lb



Native groups sit on a treasure trove of lithium. Now mines threaten their water, culture and wealth

Land Grab: What Happened on the Wind River Reservation?

Wyoming Public Radio | By [Tristan Ahtone](#)
Published June 15, 2012 at 4:41 PM MDT



Major Lithium Mine Approved in Nevada in Latest Effort to Support a Domestic Supply of Critical Minerals

Navajo Nation, Havasupai Tribe condemn transportation of uranium ore on tribal land

| Commentary | 26 March 2021

Uranium Exposure in American Indian Communities: Health, Policy, and the Way Forward

Hualapai Tribe fights to extend ban on lithium drilling it says jeopardizes a sacred site

Justice & Health

Tribes Meeting With Inter-American Commission on Human Rights Describe Harms Uranium Mining Has Had on Them, and the Threats New Mines Pose

State of Play: The Legacy of Uranium Mining on U.S. Tribal Lands

[Curr Environ Health Rep. 2017 Apr 26;4\(2\):130-141. doi: 10.1007/s40572-017-0140-5](#)

Mining and Environmental Health Disparities in Native American Communities

PBS NEWS HOUR

Residents in the Southwest struggle with the health effects of nuclear ore extraction

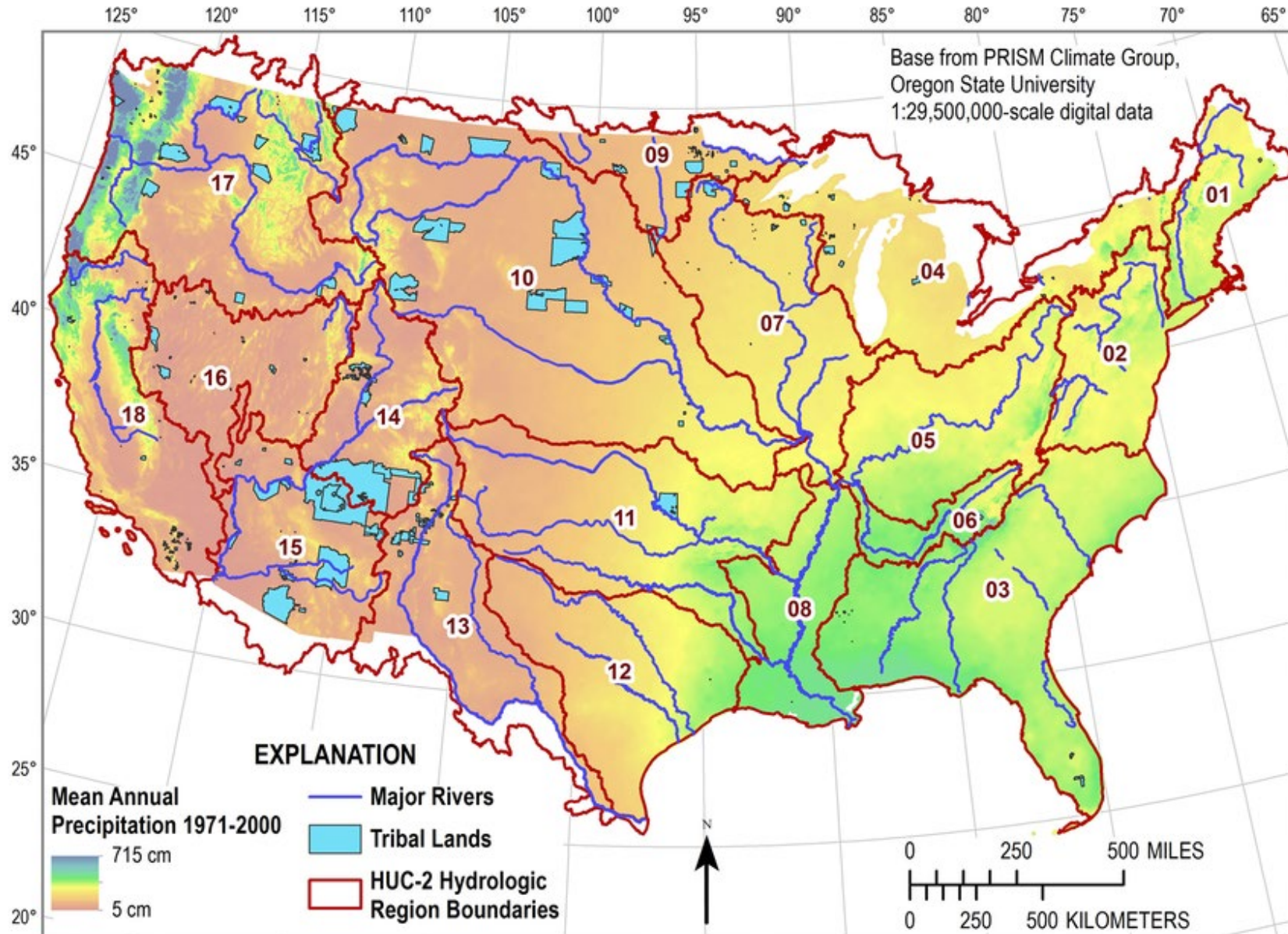
Aug 8, 2022 6:30 PM EST

Opportunities

- Investing in Community Resilience and Equity
- Education
- Economic and social opportunities
- Health
- Ecosystem services
 - Water Quality
 - Carbon Storage
 - Biodiversity Hotspots
 - Food Production
 - Cultural Significance



Streamflow Contributions from Tribal Lands to Major River Basins



<https://www.researchgate.net/publication/327587745/figure/fig1/AS:11431281271959427@1723831589801/Map-of-the-conterminous-United-States-with-federally-recognized-tribal-lands-2-digit.tif>

CARE Principles

Global Indigenous Data Alliance (GIDA) 2019

- **Collective Benefit:** Any use of Indigenous data should generate benefits for the community as a whole, not just individual researchers.
- **Authority to Control:** Indigenous communities have the right to decide how their data is collected, stored, accessed, and used.
- **Responsibility:** Researchers and institutions must build and maintain respectful relationships with Indigenous communities throughout the data collection and analysis process.
- **Indigenous Ethics:** Data sharing should be aligned with Indigenous values and knowledge systems, prioritizing cultural sensitivity and avoiding potential harm.



OPEN WITH CARE

Indigenous researchers and communities are reshaping how Western science thinks about open access to data

By Sandeep Ravindran

When Leslie "Leke" Hutchins presented his data at a scientific meeting in August 2023, he was met with some consternation. A University of California (UC), Berkeley Ph.D. student in conservation biology and a Kānaka 'Ōiwi (Native Hawaiian), Hutchins had studied the diversity of invertebrates such as insects and spiders on Native Hawaiian coffee plantations. But after extensive discussions with the farmers, he redacted the species names and where they were collected,

information the farmers considered culturally sensitive. After Hutchins announced at the meeting that he would not be providing those data publicly, one attendee asked, "What do you mean you're having some of your data closed off? You know, that's not fair," Hutchins recalls.

In academia, fairness has increasingly come to mean research data are publicly

shared and widely accessible. For example, the Ecological Society of America (ESA), at whose annual meeting Hutchins was presenting, follows an open research policy for its journals, which requires all underlying data in accepted manuscripts to be "made available in a permanent, publicly accessible data archive or repository ... with rare exceptions."

But Hutchins had good reason to protect his data, based on a different principle of fairness: the right of Indigenous people to control how data about them, their lands, and their cultures are collected and used. He's part of a growing movement among Indig-

GLOBAL EQUITY IN SCIENCE

This story is part of an ongoing News series. Read more at scim.ag/GlobalEquity

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science.org SCIENCE



Leke Hutchins (right) trapped spiders and other arthropods and found that coffee plantations in Hawaii that now host native trees and shrubs (left) have higher invertebrate diversity.

how the return of native flora affected arthropod diversity on these plantations.

He drove his sister-in-law's beat-up silver Toyota Tacoma to native farms and forests through a maze of branching roads and dirt tracks, maneuvering around gnarled roots, giant puddles, and solidified lava. At each of the handful of sampling sites he visited daily, Hutchins gathered leaf litter into a funnel with a lamp over it, which dried out the soil and caused arthropods to fall out into a collection tube. He erected large, tentlike structures to catch flying insects such as moths and flies, used brightly colored bowls to attract pollinators such as bees, and whacked trees with a stick to dislodge arthropods including beetles and thumb-nail-size long-legged spiders, which he'd race to suck through a tube

November 26, 2024

PHOTO: LEEA HUTCHINS

Danarshan

<https://www.gida-global.org/care>

<https://www.science.org/content/article/not-free-all-indigenous-communities-want-limits-how-their-data-are-shared>

Partnership and Collaboration

Tribal



Federal



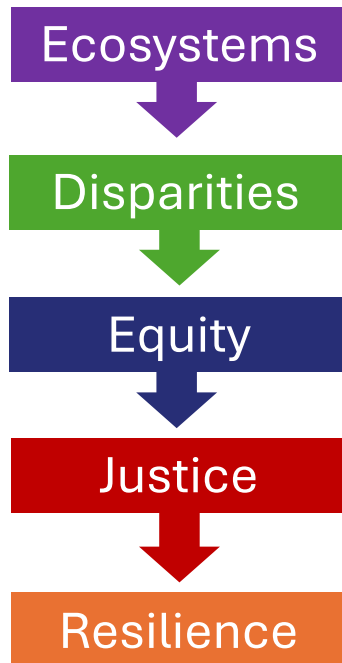
Academic



Private Sector



Questions to Ponder



- ACES' role in addressing disparities?
- Why care about equity and justice?
- What are the social and opportunity costs?
 - To ACES? To you? Your communities?
- What's ACES' commitment to promote environmental equity, justice, equality for ALL?
- ACES' role in promoting resilience and equity

....think anew, and act anew.
- Abraham Lincoln

