

INDIGENOUS INSIGHTS:



INTEGRATING REGENERATIVE POLLINATOR STEWARDSHIP FOR CHANGING CLIMES & TIMES

Melanie M. Kirby, MSc. Interdisciplinary Extension Educator
Institute of American Indian Arts ~ Santa Fe, New Mexico USA



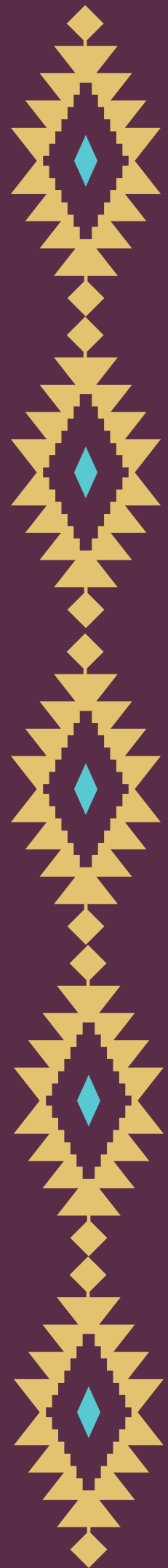
INDIVIDUAL

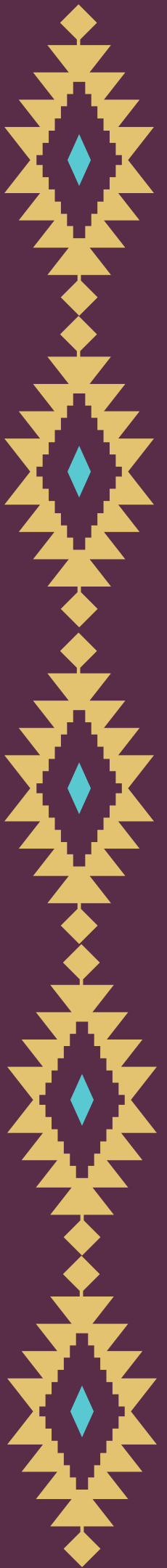


INSTITUTIONAL



COMMUNITY

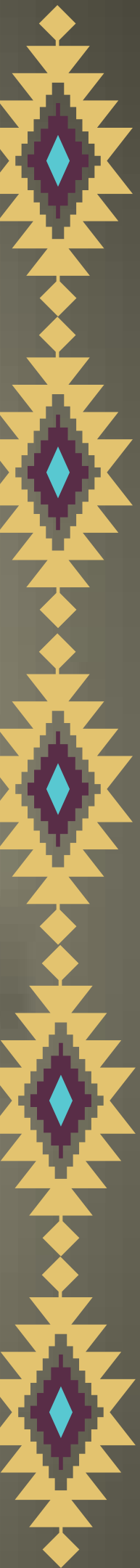


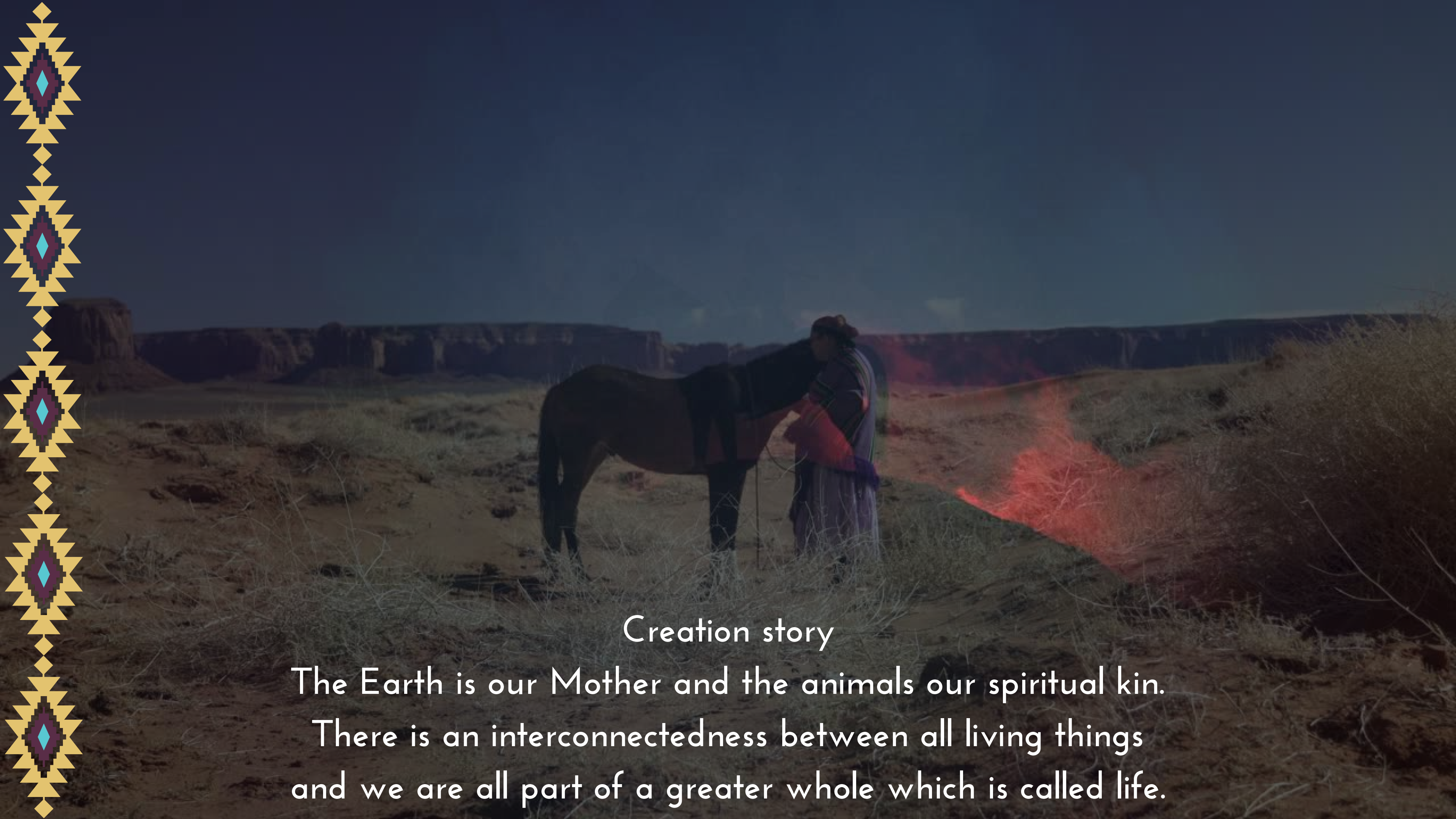




indigenous

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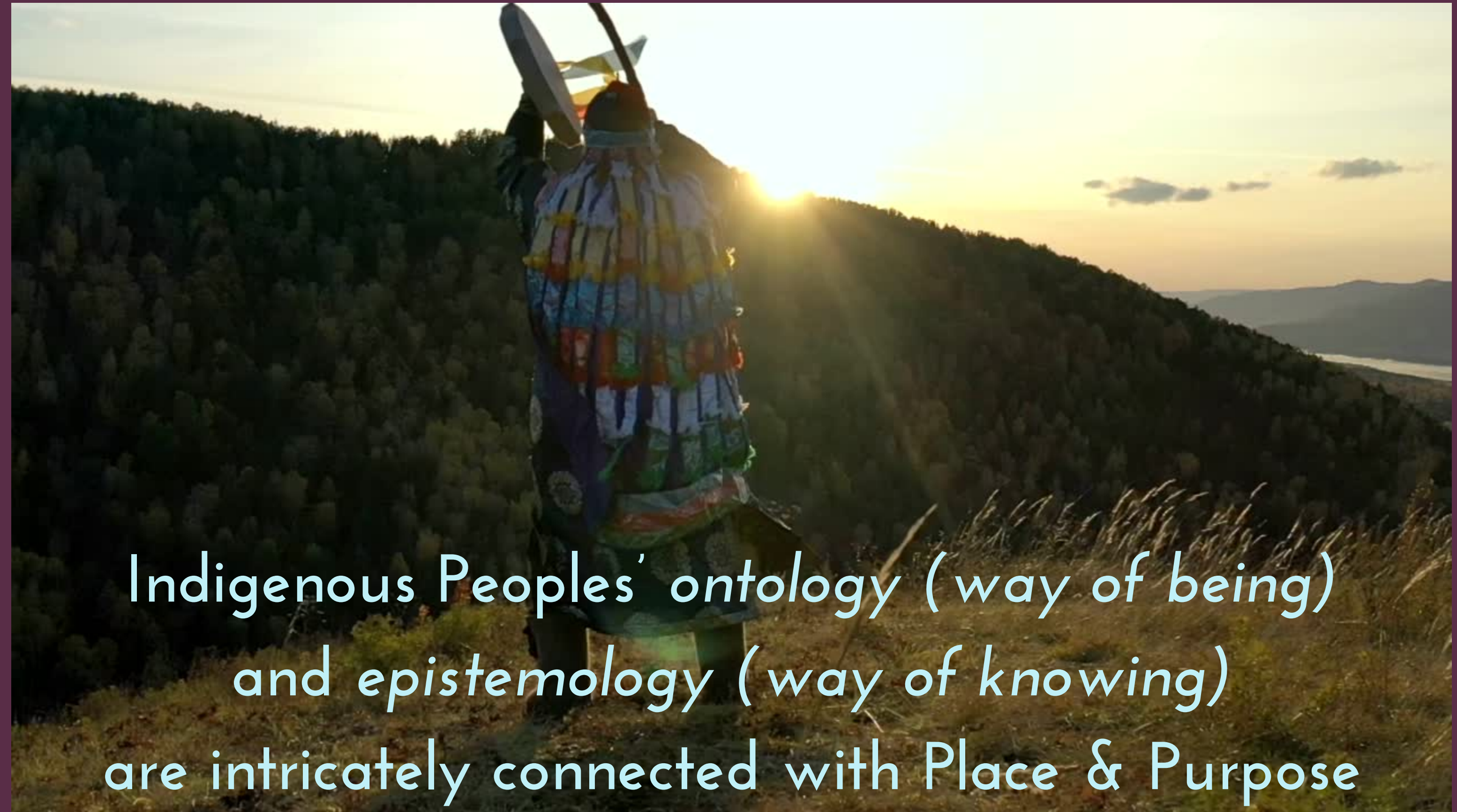




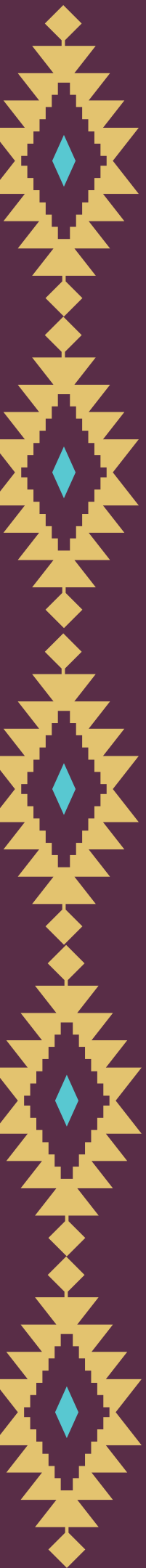
Creation story

The Earth is our Mother and the animals our spiritual kin.

There is an interconnectedness between all living things and we are all part of a greater whole which is called life.



Indigenous Peoples' ontology (way of being)
and epistemology (way of knowing)
are intricately connected with Place & Purpose



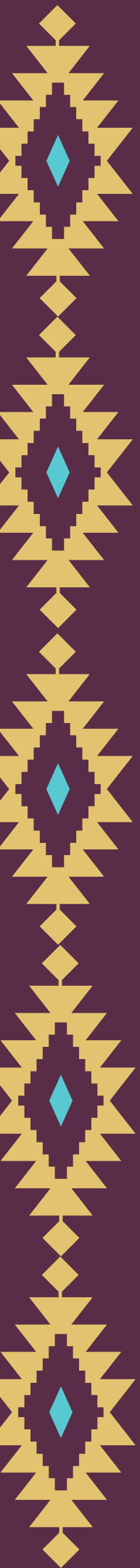


INTERCONNECTEDNESS



Casting Seeds
Sharing Stories
Learning & Teaching

STEWARDSHIP





Michelle Montgomery (enrolled Haliwa Saponi/descendant Eastern Band Cherokee living in WA)
and Paulette Blanchard (Absentee Shawnee living in Oklahoma)

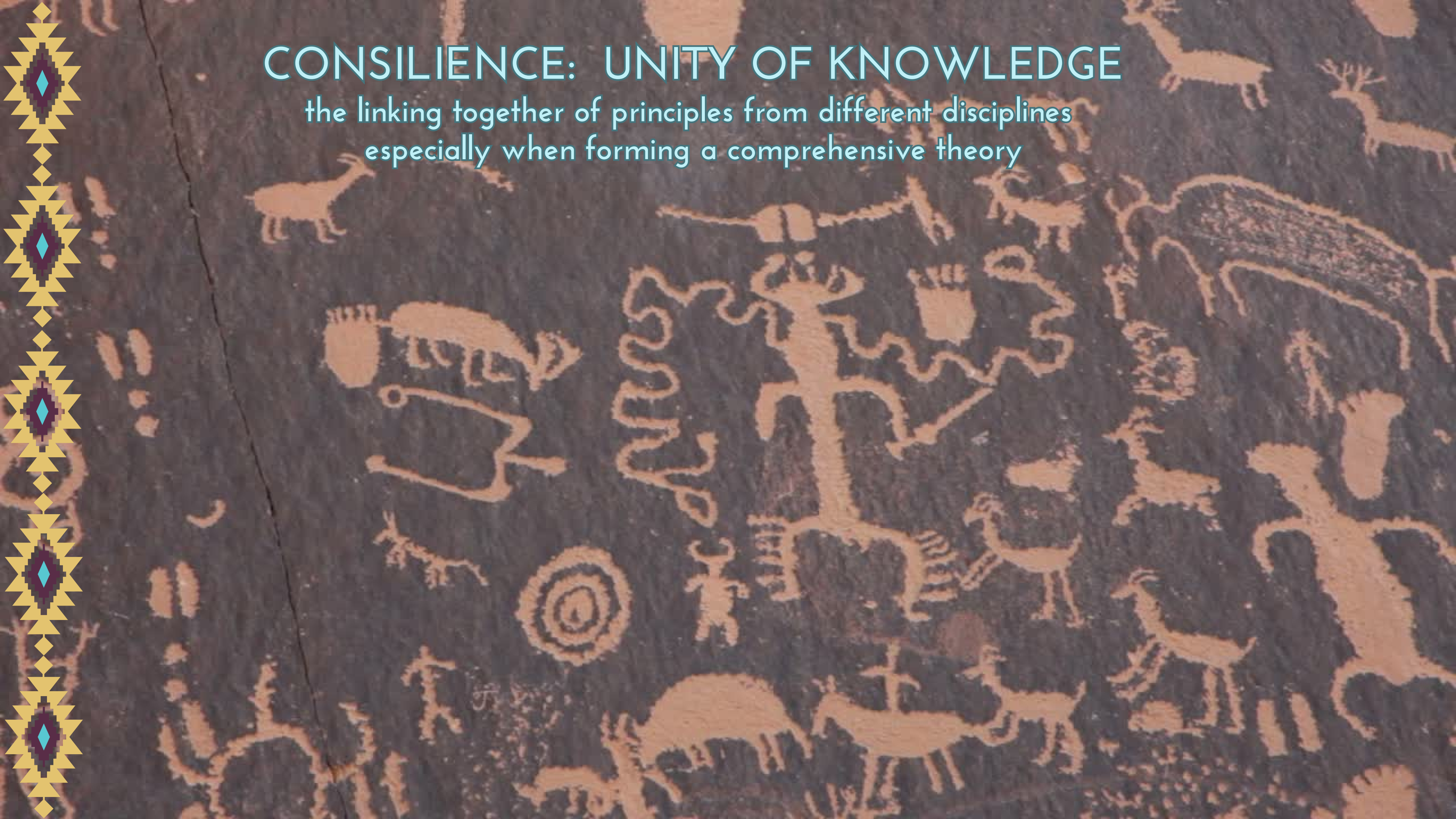
7 R's of Indigenous Research



Respect ~ Relevance
Reciprocity ~ Responsibility/Rights
Relatedness ~ Relationships
Redistribution/Reconciliation

CONSILIENCE: UNITY OF KNOWLEDGE

the linking together of principles from different disciplines
especially when forming a comprehensive theory



INSTITUTE OF AMERICAN INDIAN ARTS TRIBAL POLLINATOR STEWARDSHIP PROGRAM



Melanie Kirby- Entomologist & Extension Educator
Santa Fe, New Mexico ~ USA



517
FTE

91
Tribes

36
States

198
On-Campus

119
Online

979
Headcount

*1994 TCU Land-Grant

MISSION:

“To empower creativity & leadership in Indigenous arts & cultures through higher education, lifelong learning, and community engagement.”

- CINEMATIC ARTS & TECHNOLOGY
- CREATIVE WRITING
- INDIGENOUS LIBERAL STUDIES
- MUSEUM STUDIES
- PERFORMING ARTS
- STUDIO ARTS

Happenings

Here you will find [IAIA Happenings](#). For IAIA Community happenings like student club events, ASG meetings, community-only workshops, and other campus happenings, visit the [IAIA Community Calendar](#).



IAIA A-i-R: McCoy, Sorensen, Silverfox—Welcome Dinner
Mon, September 11, 3:00 pm–5:00 pm
Tue, September 5, 5:00 pm–7:00 pm
Join IAIA A-i-R artists Daniel Dean McCoy, Matagi Sorensen, and Krystle Silverfox for dinner and an open studio tour.



IAIA A-i-R: McCoy, Sorensen, Silverfox—Open Studios
Mon, September 11, 3:00 pm–5:00 pm
Join IAIA A-i-R artists Daniel Dean McCoy, Matagi Sorensen, and Krystle Silverfox for an open studio tour.



2023 IAIA Fall Powwow
Sat, October 7, 11:00 am–5:00 pm
Save the date for the 2023 IAIA Fall Powwow on Saturday, October 7, 2023, from 11 am–5 pm (MDT).

Latest News

The most recent news, press releases, and updates from the Institute of American Indian Arts. [View all News](#)



IAIA's Featured Article in the SWAIA Booth Directory—"A Portal to Indigenous Fashion"
Aug 9, 2023
For the Official Santa Fe Indian Market Artist Directory & Booth Guide, IAIA Communications Writer Neebivnaukzhik Southall (Chippewas of Rama First Nation) '19 wrote "Portal to Indigenous Fashion."



Anna Rathmann, Executive Director at The Jane Goodall Institute USA, and the Partnership with IAIA
Aug 9, 2023
The Jane Goodall Institute's (JGI) partnership with IAIA increases programming for both IAIA's Land-Grant and the JGI's Roots & Shoots.



Action/Abstraction Redefined opens at the Saint Louis Art Museum
Aug 1, 2023
The IAIA Museum of Contemporary Native Arts' national traveling exhibition Action/Abstraction Redefined (AAR) successfully opened at the Saint Louis Art Museum in Missouri.



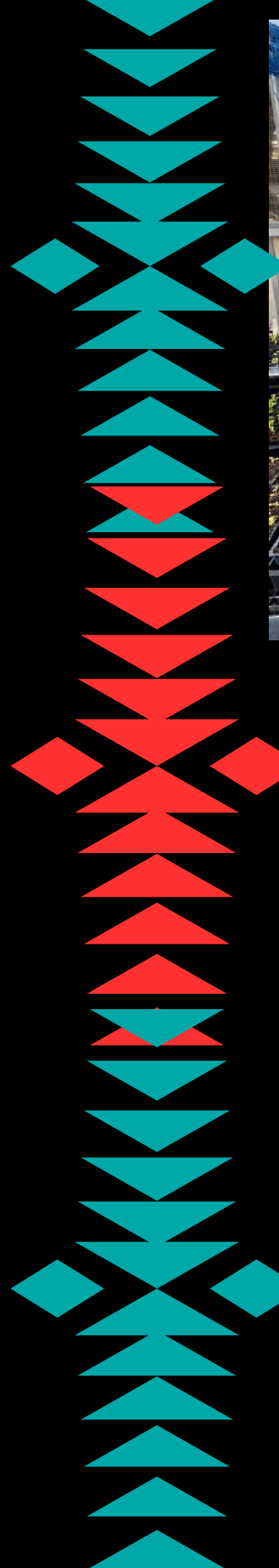
Institute of American Indian Arts—August 2023 Events
Jul 31, 2023



New IAIA Trustees Appointed by President Biden
Jul 20, 2023
On July 14, 2023, the White House announced that President Biden



IAIA Alumni Spotlight—Sydney Isaacs (Tlingit) '16
Jul 17, 2023



INDIGENOUS YOUTH AGRICULTURE PROGRAM



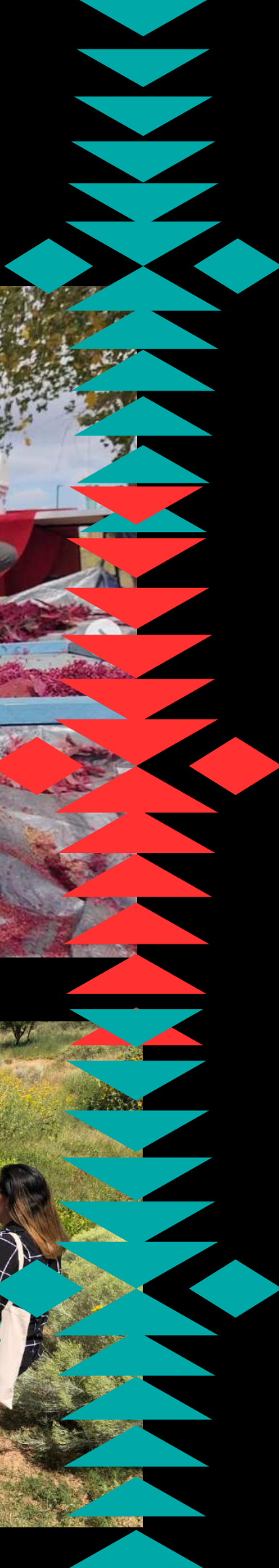
LAND-GRANT PROGRAMS



- IYA YOUTH PROGRAM (K-12)
- IYA STUDENT MENTOR-IN-TRAINING (EDU)
- IYA GUIDE-THE-MENTOR (COLLEGE STUDENTS)

SOUTHWEST AND INTERMOUNTAIN GARDENING AND GREENHOUSE

- INDIGENOUS FOODS WORKSHOPS
- GROWING FOOD ON THE IAIA CAMPUS AND SHARING WITH OUR COMMUNITY





4 DIRECTIONS PROJECTIONS: SHARING TRADITIONAL & CONTEMPORARY INDIGENOUS KNOWLEDGE TO NURTURE PEOPLE, REVERE PLACES, & PROMOTE PURPOSE.



IAIA LAND-GRANT PROGRAMS FREE WEBINAR SERIES~ To Register, www.iaia.edu/cecourses

THE 4 DIRECTIONS PROJECTIONS

~Sharing traditional & contemporary Indigenous Knowledge~
to nurture people, revere places, and promote purpose

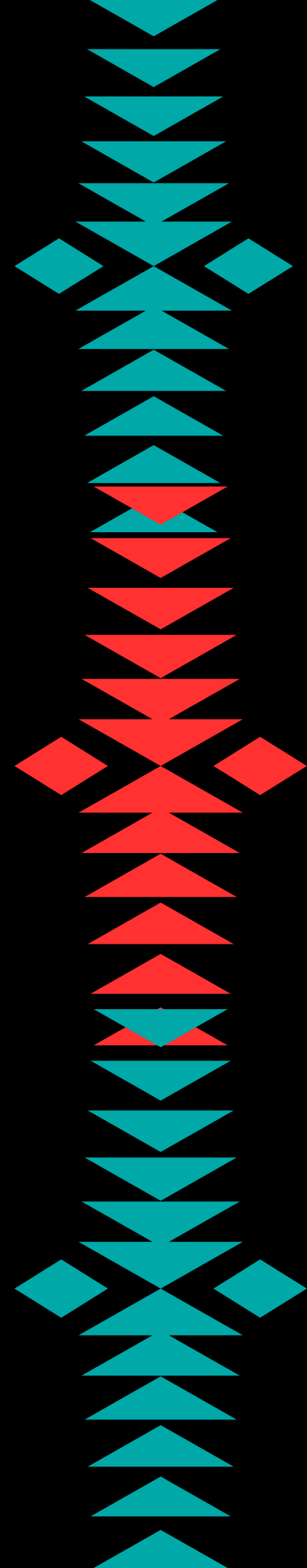
Dr. Karletta Chief (Diné)

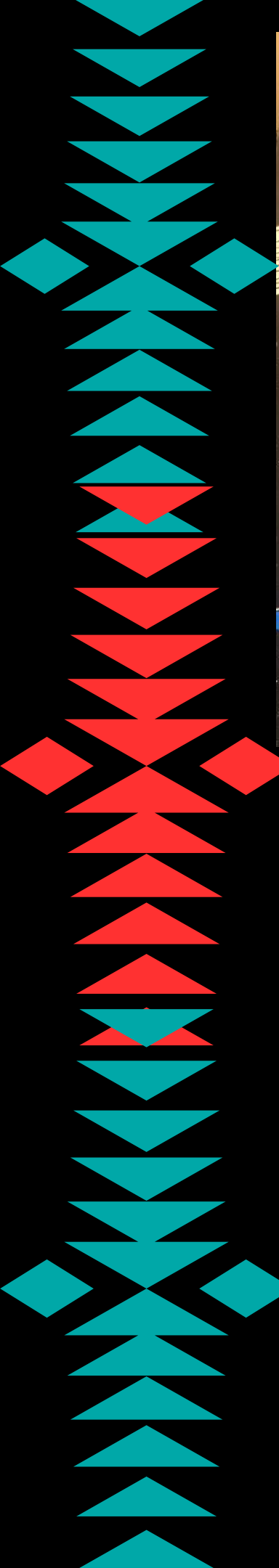
Monday, May 8, 2023 12:15-1:30 pm via ZOOM



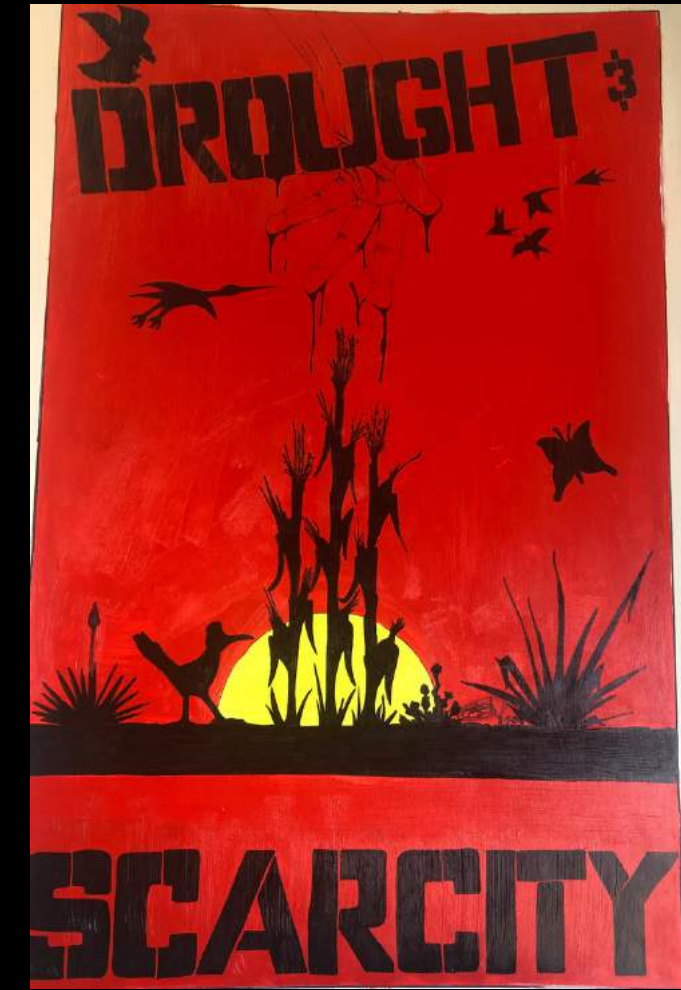
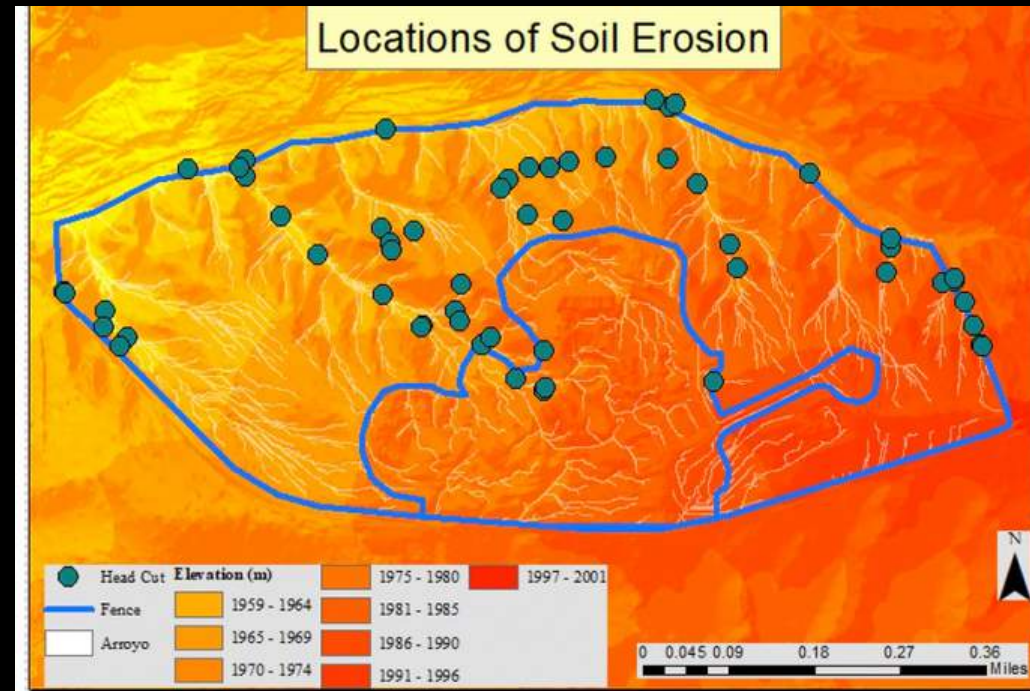
**“Indigenous food, energy and water security
and sovereignty during COVID.”**

Dr. Karletta Chief (Diné) is a Professor and Extension Specialist in the Department of Environmental Science at the University of Arizona. She is also the Director of the Indigenous Resilience Center. As an Extension Specialist, she works to bring relevant water science to Native American communities in a culturally sensitive manner. The Indigenous Resilience Center aims to facilitate efforts of UArizona climate/environment researchers, faculty, staff, and students working with Native Nations to build resiliency to climate impacts and environmental challenges. Two of her primary tribal projects are The Pyramid Lake Paiute Tribe Climate Adaptation and Traditional Knowledge Project and Gold King Mine Spill Diné Exposure Project. In partnership with Diné College, Dr. Chief leads the NSF Indigenous Food, Energy, and Water Security and Sovereignty Program and is training 39 graduate students. Indige-FEWS's vision is to develop a diverse workforce with intercultural awareness and expertise in sustainable food, energy, and water systems (FEWS), specifically through off grid technologies to address the lack of safe water, energy, and food security in Indigenous communities.





HABITAT RESTORATION PROJECTS



CONTEXTUALIZING CULTURE

IAIA[®]
INSTITUTE of
AMERICAN INDIAN ARTS

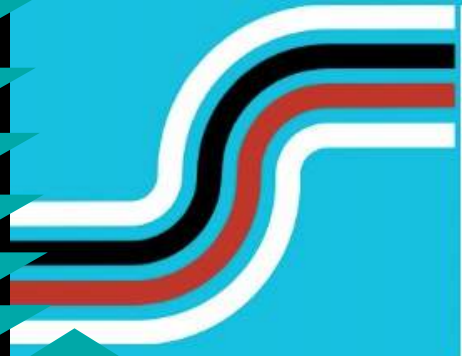
LAND-GRANT
PROGRAMS



Indigenous Knowledge Systems are relational tapestries weaving observations and experiences of lands and reciprocity of cultural interactions bound by communities.

Pollinator Kin: Diversity and Presence





INTERCONNECTED STEWARDSHIP

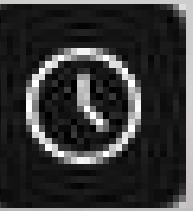
WEAVING INDIGENOUS ARTS & SCIENCES FOR ENVIRONMENTAL OUTREACH

MELANIE M. KIRBY ~ EXT. ED TERESA K. QUINTANA ~ PROGRAM ASSOC. PAUL QUINTANA ~ GARDENER LAURIE LOGAN-BRAYSHAW ~ DIRECTOR

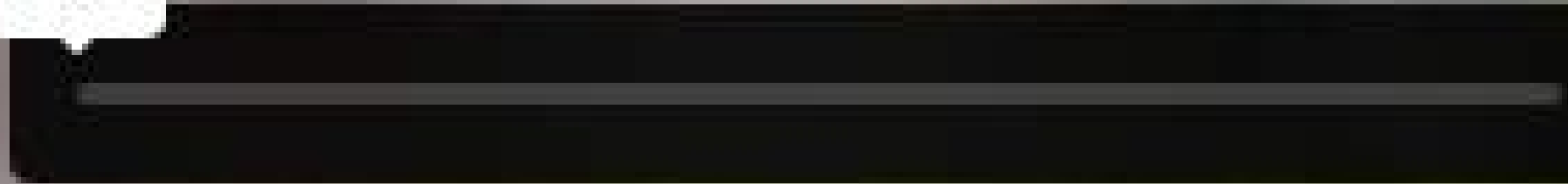
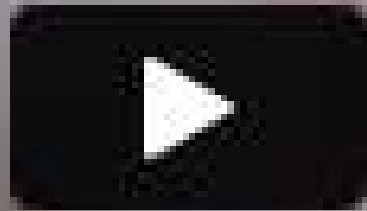
Native Science Report



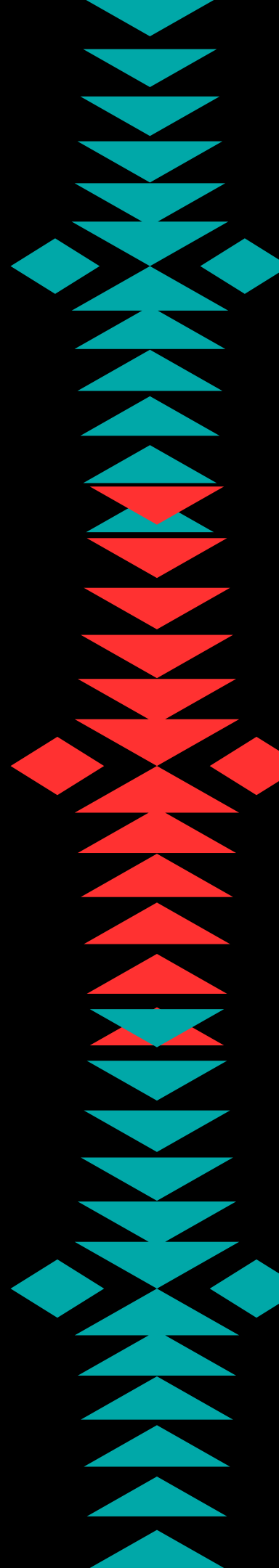
@IAIALANDGRANTPROGRAMS



03:09



vimeo



THUNDER BEE & POLLINATOR HABITAT PROGRAM

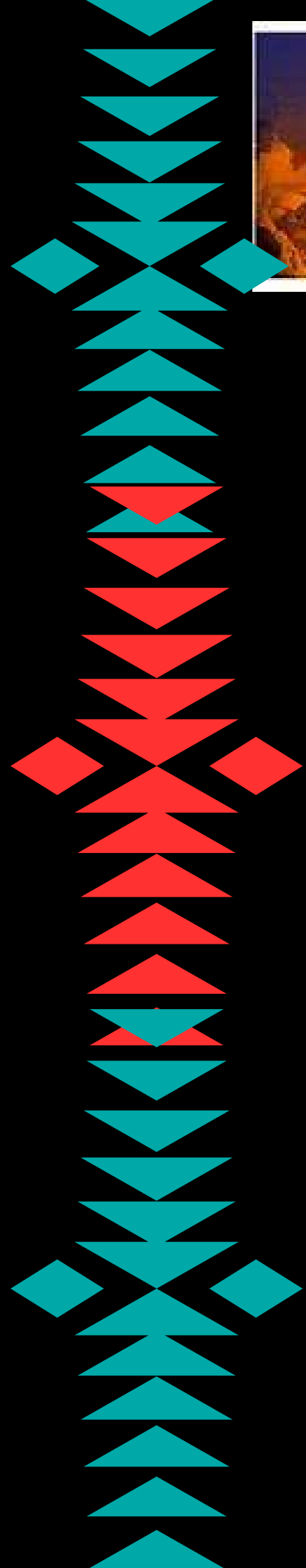
TRIBAL BEEKEEPING PROGRAM (3 YRS.)

USDA- ARS SW CLIMATE ADAPTATION SCIENCE CENTER

USDA-OTR GRASSLANDS & POLLINATORS COOP AGREEMENT

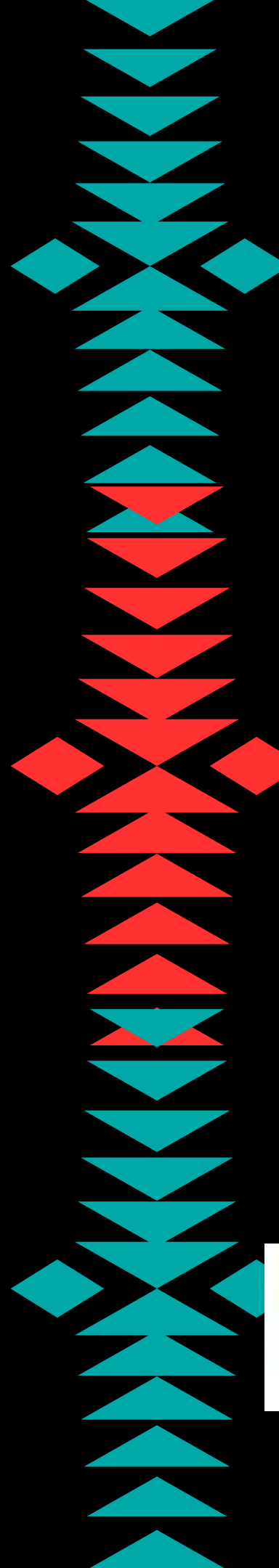
NIFA NEW DISCOVERIES TRIBAL RESEARCH GRANT






GRASSLANDS & POLLINATORS





IAIA LAND-GRANT PROGRAMS

INTRO TO BEEKEEPING & POLLINATOR STEWARDSHIP FOR INDIGENOUS STEWARDS



THE IMPORTANCE OF PLACE IN POLLINATOR STEWARDSHIP

- Pollinators create food & medicine for the world.
- They are impacted by our stewardship practices.
- There are over 20k different bee relatives across the globe- 4k are on Turtle Island.
- Learning how to nurture pollinator habitat can also support biodiversity and local food systems.

COURSE DESCRIPTION

- 7 month course: Oct-Dec & April-July
- Applications due September 15, 2023.
- Cohort limited to 12 aspiring pollinator stewardship facilitators who will support their tribal communities & organizations.


COHORT VISION

- Cohort selection based on interest in serving as a lead for their tribal community or organization.
- The course will follow a Train-the-Trainer process to encourage each participant to become more familiar and comfortable in sharing information with others.

TO APPLY

Visit the QR code or link below by September 15, 2023

<https://forms.gle/yj38qjVw6RTkPgZ19>




USDA Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE



USDA'S NEW NATIONAL POLLINATOR SUBCOMMITTEE

Members

Christina Grozinger

Penn State University
University Park, PA

Term: first, ends FY2025 on 9/30/25

Daniel Schmehl

Bayer Crop Science
Chesterfield, MO

Term: first, ends FY2025 on 9/30/25

Danielle Downey

Project Apis m.
Salt Lake City, UT

Term: first, ends FY2025 on 9/30/25

Darren Cox

Cox Honey of Utah
Mendon, UT

Term: first, ends FY2025 on 9/30/25

Hollis Woodard

University of California, Riverside
Riverside, CA

Term: first, ends FY2025 on 9/30/25

Kelly Bills

Pollinator Partnership
San Francisco, CA

Term: first, ends FY2025 on 9/30/25

Margarita Lopez-Uribe

The Pennsylvania State University
University Park, PA

Term: first, ends FY2025 on 9/30/25

Melanie Kirby

Institute of American Indian Arts
Santa Fe, NM

Term: first, ends FY2025 on 9/30/25

Ramesh Sagili

Oregon State University
Corvallis, OR

Term: first, ends FY2025 on 9/30/25



National Agricultural Research, Extension,
Education, and Economics Advisory Board

U.S. DEPARTMENT OF AGRICULTURE

Pollinator Subcommittee

The Pollinator Subcommittee is the newest subcommittee of the National Agricultural Research, Extension Education, and Economics (NAREEE) Advisory Board. The Board is led by staff in the [Office of the Chief Scientist](#) (OCS), in the [Research, Education, and Economics](#) (REE) Mission Area.

This subcommittee is advisory in nature and members will be asked to make pollinator health-related recommendations, reviews, and consultations to the NAREEE Advisory Board (and subsequently to REE, other USDA mission areas, and federal pollinator coordinators) on national priorities, research needs, and best available science in informing USDA pollinator-related policy and program decisions.

Please visit usda.gov/pollinators to learn more about USDA pollinator initiatives. With 17 offices with pollinator portfolios, USDA supports the critical role pollinators play in agriculture through research and data collections, diagnostic services and pollinator health monitoring, pollinator habitat enhancement programs, pollinator health grants, and financial assistance programs.

Menu

Indigenous Ways of Knowing

1 Welcome

Welcome Video

Module overview

Learning outcomes

Reflecting questions

MAIN MENU

CREDITS

RESOURCES

TOPICS

Characteristics of Indigenous k...

Sources of indigenous knowled...

Indigenous Axiology: Values an...

Ojibwe Seven Grandfather Teac...

Indigenous knowledge and We...

Indigenous languages VIDEO

Indigenous knowledge and lear...

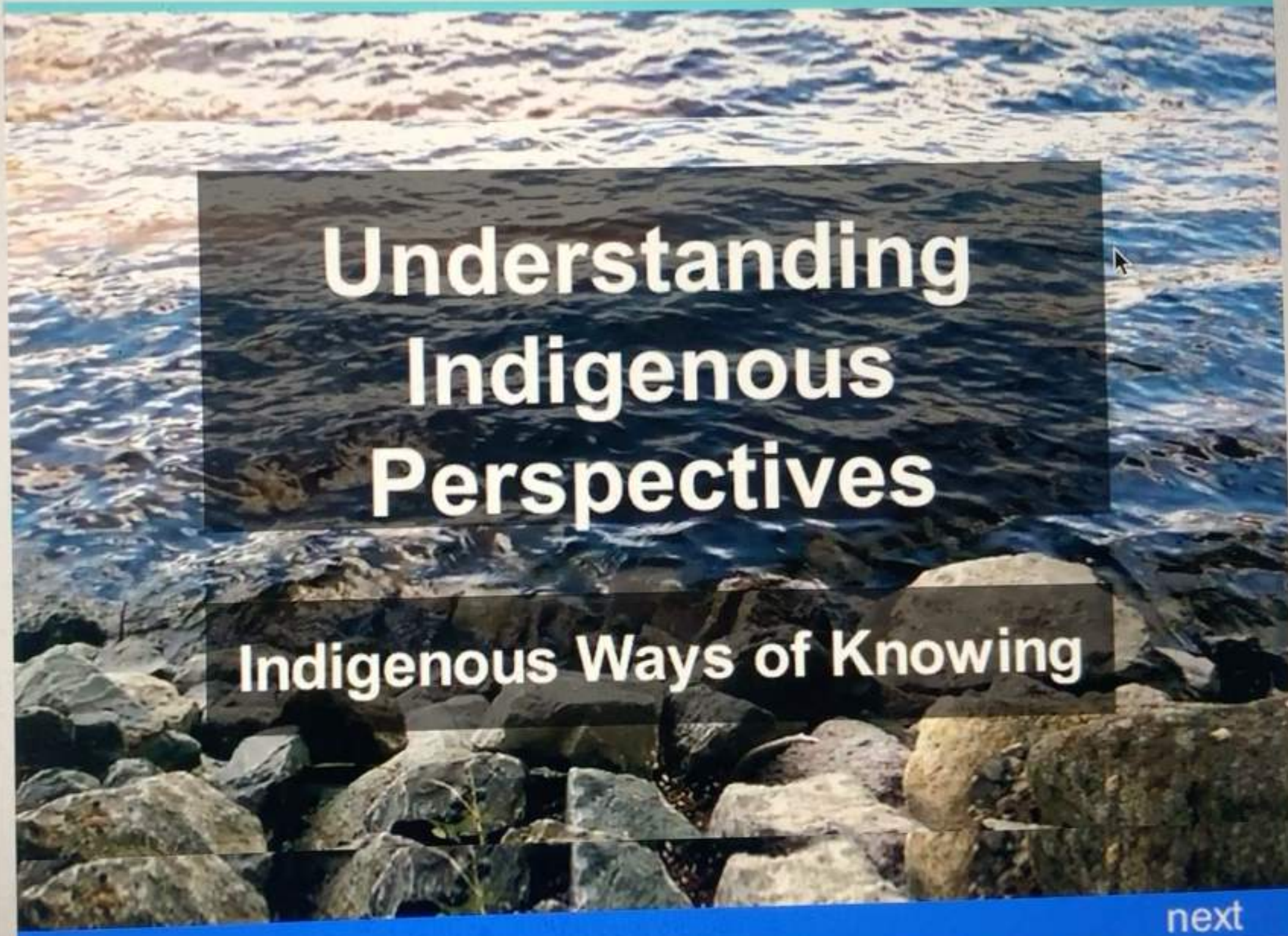
Suggested Activities



UNIVERSITY OF TORONTO
OISE | ONTARIO INSTITUTE
FOR STUDIES IN EDUCATION

Understanding Indigenous Perspectives: Indigenous Ways of Knowing

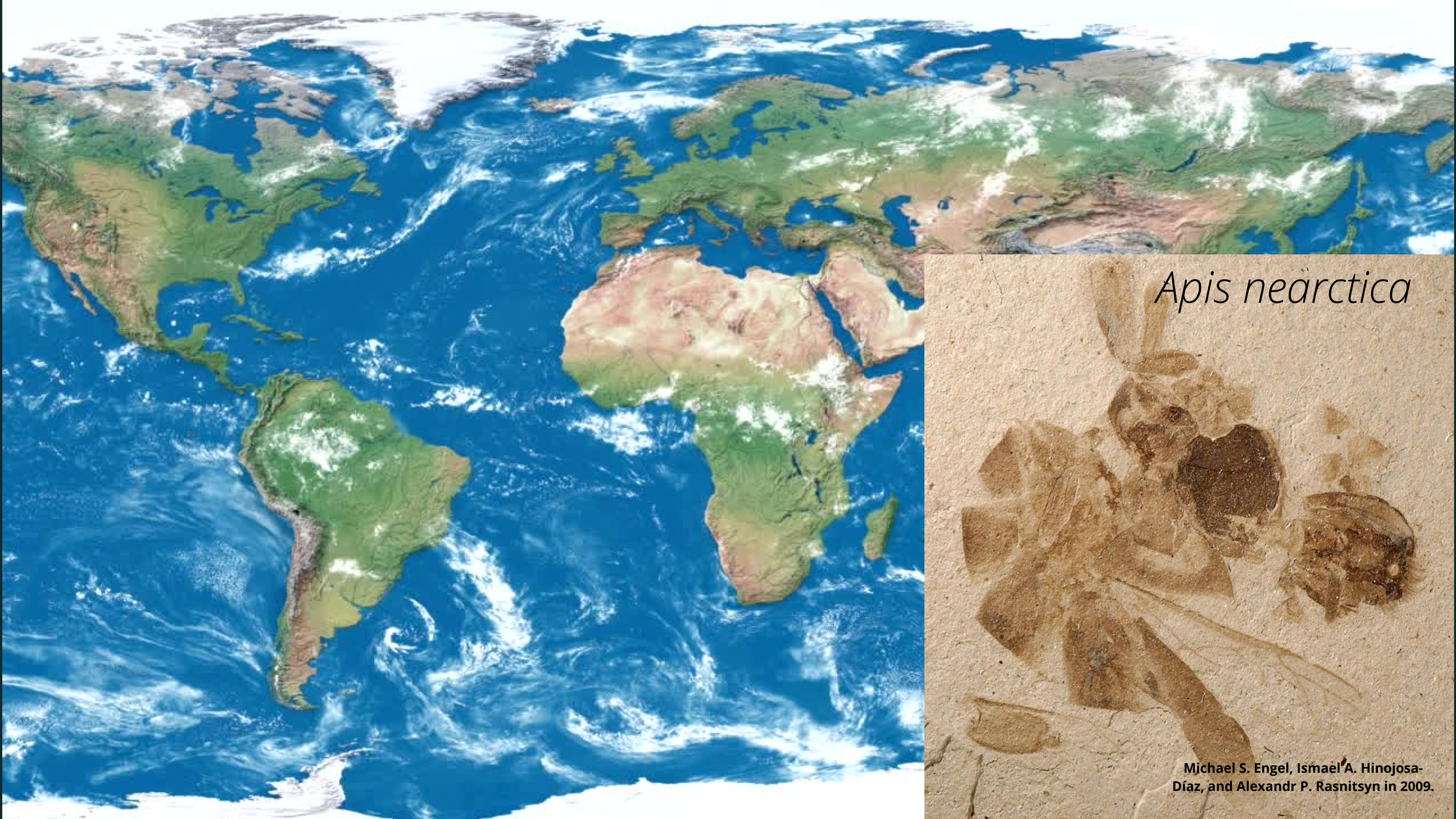
Resources





Ancestors





Apis nearctica

Michael S. Engel, Ismael A. Hinojosa-Díaz, and Alexandr P. Rasnitsyn in 2009.

POEH POVI: THE FLOWER PATH

Indigenous Matriarch Collective for Pollinator Habitat Advocacy

Melanie M. Kirby¹, Roxanne Swentzell², Addelina Lucero³, Teresa K. Quintana⁴, Beata Tsosie-Peña

¹Tortugas Pueblo: Tiwa/Mescalero Apache/Mestiza- MSc. Entomology, Interdisciplinary: Science + Art + Culture; ²Santa Clara Pueblo/Kha'p'oe Ówíngeh: Tewa- PhD. Indigenous Arts & Culture, Food Sovereignty Farmer; ³Taos Pueblo: Tiwa/Yaqui/Chicana - Ethnobotanist, Seed-keeper, Food Sovereignty Educator; ⁴Kiowa/Cochiti Pueblo - Indigenous Land Steward, Gardener, Educator; ⁵Santa Clara Pueblo/Kha'p'oe Ówíngeh: Tewa - Poet, Doula, Seed-keeper, & Land Defender



ABSTRACT:

Poeh Povi-The Flower Path is a collective of Indigenous Matriarch beekeepers, farmers, educators, artists and culture bearers with projects across Northern New Mexico Indigenous and neighboring communities with shared public lands, forests, and watersheds that focus on:

- Building seed sanctuaries
- Organizing community wildflower seed plantings
- Revitalize wildfire impacted zones
- Develop inclusive pollinator stewardship
- Culturally relevant outreach materials
- Establishment of pollinator preserves across northern New Mexico

with Indigenous youth and elders and diverse community organizations.

This initial project is the launching point for the Land of Enchantment Pollinator Preserve Initiative. The Land of Enchantment Pollinator Preserve Initiative. This initiative focuses on connecting community stakeholders to develop collaborations for learning from and working with each other as we adapt to shifting climate issues, the need for rebuilding habitat from devastating environmental catastrophes- such as the recent wildfires in northern New Mexico and share in the responsibility to ensure that the coming generations are exposed to ancestral and sustainable western science knowledge systems.

METHODS:



Fig. 1 Many indigenous communities developed highly-evolved systems of seed saving that often included optimal season times for seed saving, seed-saving rotations, containers and storage units that lasted for hundreds of years, processes that considered pollination patterns and systems, and associated cultural meaning to the different stages of the seed-saving process (First Nations.org).



Fig. 2 Bronze sculpture by Poeh Povi Artist Roxanne Swentzell. Indigenous seeds are considered to be sacred by many cultures. They contain the epigenetic memories and have the magnificence to create life, food, and medicine for the world.



Fig. 3 Seed Ball Recipe: Collect native and locally-adapted wildflower seeds. Add dried seed mix to 2 parts soil/1 part clay. Form into balls or coils and let dry. Cast seed balls in areas that will receive enough water.

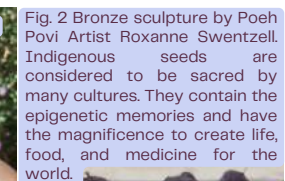


Fig. 4 Seed Ball Paper: Add dried & stratified native and locally-adapted seed mixes to shredded recycled paper pulp dissolved in water. Place mixture in thin applications on screens to dry. Plant paper in appropriate areas.

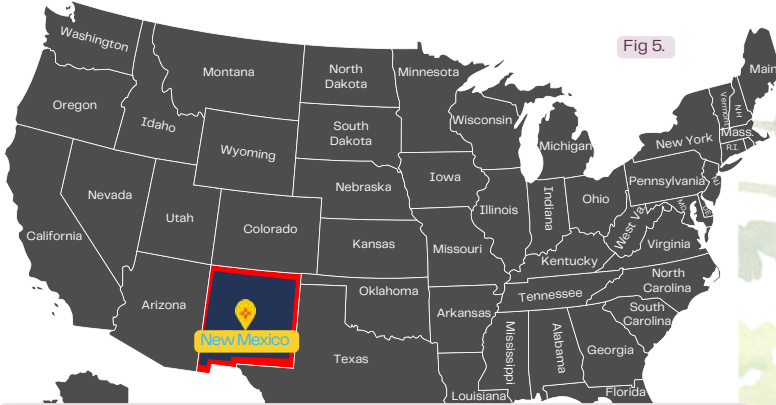


Fig 5. Map of United States with location of New Mexico highlighted. New Mexico is home to 23 Indian tribes which include: 19 Federally-recognized Pueblos, such as Acoma, Cochiti, Isleta, Jemez, Laguna, Nambé, Ohkay Owingeh, Picuris, Pojoaque, Sandia, San Felipe, San Ildefonso, Santa Ana, Santa Clara, Santo Domingo, Taos, Tesuque, Zuni & Zia; 3 Apache tribes, namely the Fort Sill Apache Tribe, the Jicarilla Apache Nation and the Mescalero Apache Tribe. The Apache also include the subgroups of Jicarilla, Lipan and Kiowa Apache. The Navajo Nation, which is the largest Native American tribe in the U.S.

Fig 6. Acres: 341,735/ Hectares: 138,295,25 Personnel: 402 - Start Date: Hermits Peak: April 6, 2022; Calf Canyon: April 19, 2022 | Cause: Hermits Peak: Spot fires from prescribed burn; Calf Canyon: Holdover fire from prescribed pile burn | Location: 12 miles NW of Las Vegas, NM Fuels: Heavy mixed conifer, ponderosa pine, brush, and grass



Fig 7. Acres: 341,735 Total personnel: 402 Start Date: Hermits Peak: April 6, 2022; Calf Canyon: April 19, 2022 | Cause: Hermits Peak: Spot fires from prescribed burn; Calf Canyon: Holdover fire from prescribed pile burn | Location: 12 miles NW of Las Vegas, NM Fuels: Heavy mixed conifer, ponderosa pine, brush, and grass



Fig. 8 Poeh Povi intern Ellen Maldonado prepares to check an artisanal hive at Santa Clara Pueblo, Summer 2023.



Fig 9. Pollinator Advocacy Sci-Art as part of Taos Annex: Windows on the Future, 2021

LongeviBees



by
Zia Queenbees

Mark Spitzig



LongeviBees



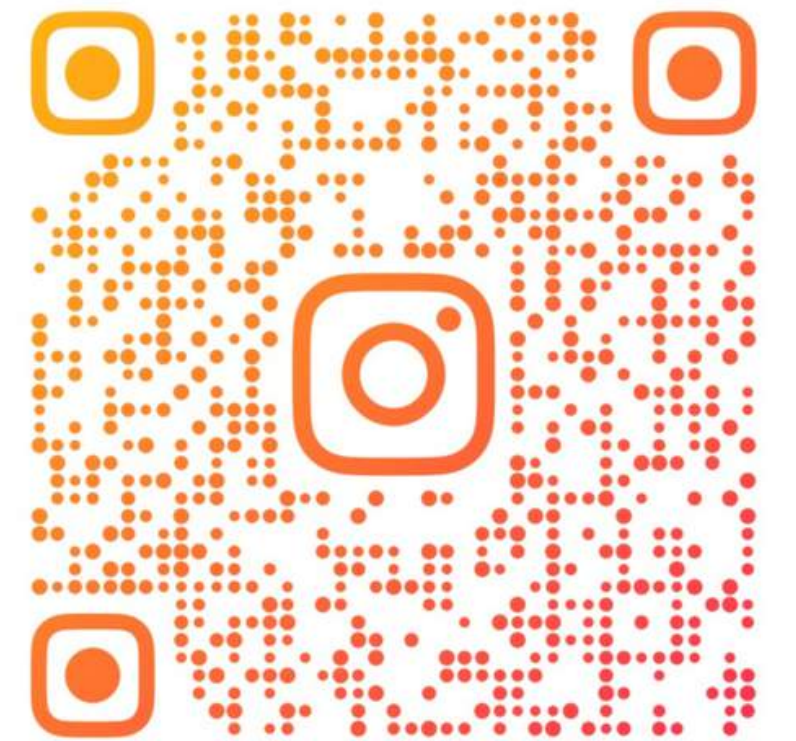
Michigan



New Mexico



California



@ZIAQUEENBEES



In Her Majesty's Chambers:



Introduction to Queen Honey Bee Breeding & Rearing

Zia Queenbees Farm & Field Institute

Field Guide

Melanie Kirby



The Southwest Survivor Queen Bee Project
 2007-2009
www.sare.org Project #FW07-032



**ROCKY MOUNTAIN
 SURVIVOR QUEENBEE COOPERATIVE**



WSARE* Project OW12-096 Reference Manual

Funded by WSARE 2012—Facilitated by Melanie M. Kirby



- ⬡ Ft. Collins
5,003' / 1,523m
- ⬡ Denver
5,183' / 1,580m
- ⬡ Walsenburg
Spanish Peaks
6,182' / 1,881m
- ⬡ Mora
7,172' / 2,186m
- ⬡ Arroyo Hondo
6,798' / 2,072m
- ⬡ Arroyo Seco
7,629' / 2,325m
- ⬡ Santa Fe
7,260' / 2,213m
- ⬡ Buena Vista
6,998' / 2,133m
- ⬡ Truchas
8300' / 2,530m



Strategies for the Future...



ADAPTIVE BEE BREEDERS ALLIANCE

BUILDING COMB BETWEEN THE FIELD AND THE LAB~ FROM CASTLE TO CASTLE

(1) MELANIE KIRBY, (2) MEGAN MAHONEY, (3) ANGE ROELL, (4) JOHN JACOB, (5) AIDEN WING, (6) SAM COMFORT, (7) EMILY BONDOR, (8) MARK SPITZIG, (9) TUCKA SAVILLE, (10) ERIC MCEWAN, (11) ZAC LAMAS, (12) CARL CHESICK, (13) ETHEL VILLALOBOS, (14) BRANDON HOPKINS, (15) JUDY WU-SMART, (16) JULIANA RANGEL, (17) GARETT SLATER, (18) KAIRA WAGONER, (19) JULIA MAHOOD, (20) ROBYN UNDERWOOD, (21) MARGARITA LOPEZ-URIBE, (22) MEGAN MILBRAITH, (23) BROCK HARPUR, (24) ELLEN TOPITZHOPFER

INTRODUCTION



Fig 1. *Apis nearctica* (MS, Engel, 2009) North American fossilized honey bee found in Nevada and dated to be 14 million years old. Recognizable by its distinctive pattern of wing veins (arrow) and other features (such as hair on the eye) shared by modern relatives. M. S. Engel/Proc. Cal. Acad. Sci. <https://ucanr.edu/bv/~u0>

The discovery of *Apis nearctica*¹² (fig.1) inspires investigation into *Apis mellifera*, emigration, migration, and stewardship to delve deeper into the history of American honey bee genetics and how today's gene flow of contemporary cousins to this ancestor bee has been impacted by land stewardship practices, selection, climate change and adaptation³. These factors impress upon the increasing challenges of breeding resilient and adaptive ecotypes⁴, especially as the movement of honey bees across the North American continent has not been with the utmost care of circumstance and at a detriment to biodiversity conservation (fig. 2)⁷. This Research to Grassroots (RGR) grant funded by Western Sustainable Agriculture Research Education (WSARE)⁸ is based on two previously funded WSARE grants: The Southwest Survivor Queenbee Project (Kirby, 2007)⁷ and The Rocky Mountain Survivor Queenbee Cooperative (Kirby, 2012)⁹.

ABBA aims to build comb between the field and the lab and support small to mid-scale bee breeders in their efforts to investigate and preserve developing American *Apis m.* ecotypes, germplasm collection for integration and exchanges of naturally resilient strains, cryopreservation, Drone Congregation Area assessments (DCAs), development of whole system methods for adaptive bees for mitigating climate change challenges. Objectives include regionally-adaptive bee breeding & Management reference field guides, professional development opportunities, and applied research practices for selective bee breeding approaches across the United States ~ from the western coastal mountains, high deserts, intermountain forests and tundra, to the plains, swamps, and eastern woodlands. This project has been awarded funding starting 2022 - 2025 with fiscal agency by NM Community Capital.⁹

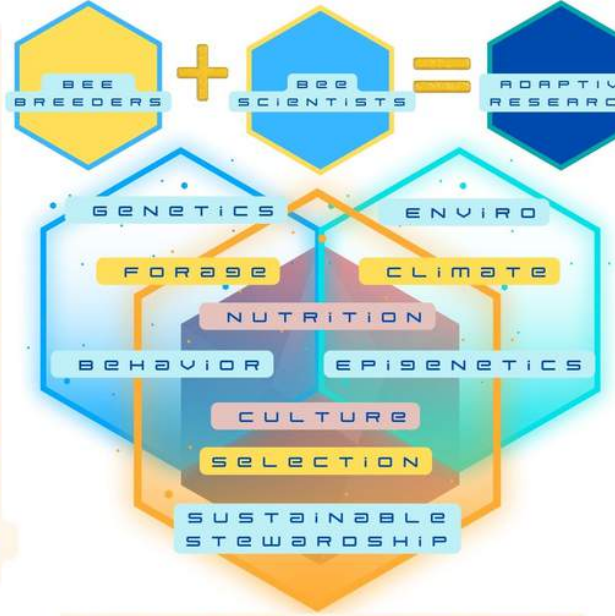


Fig 2. Infographic of the varied and dynamic interface between environment and genetic plasticity as nested within the multidimensional components that enables nature to nurture and to nurture.

MATERIALS & METHODS

- Samples from each haploid drone breeding pool will be sent to Purdue for genomic analysis
- Quantitative Trait Loci (QTLs) review by Purdue will be used to interpret heritable traits.
- A cross-section of diploid sisters will be assessed for Mitochondrial DNA by Texas A&M.
- Tropical epigenetics, longevity, and hygienic behavior will be reviewed by Univ. of Hawaii.
- Uncapping assessments will be reviewed by Univ. of Hawaii.
- Nutrition analysis and pesticide residue analysis in bee bread and honey in breeder colonies will be analyzed by UNL.
- Viral and disease analysis on breeding stock will be conducted by Michigan State Univ.
- Instrumental Insemination trainings will be facilitated by Mahoney Bees & Queens.
- Liquid Nitrogen Germplasm Cryopreservation will be housed by Washington State Univ and USDA National Germplasm Bank in Fort Collins, CO.

- Unhealthy Brood Odor pheromone (UBO) will be prepared Univ. of North Carolina-Greensboro and participating producers will conduct assays for hygienic assessment.
- UAVs will help to determine participating producers' Drone Congregation Areas in their respective locals with training from GA Master Beekeeper.
- Comparative studies on stewardship approaches will be conducted by Penn State.
- Longevity selection protocol development with haploid drone stock will be assisted by USDA-ARS Baton Rouge.
- Producer interest in developing field assays will be consulted with Oregon State Univ.
- Selection & Breeding Practices (BBP) Anthology will be co-authored by all participating producers and reviewed by all participating scientists.
- All publications will be open source and published on the ABBA website.

MAP LEGEND



Fig 3.

ACKNOWLEDGEMENTS

- (1) MELANIE KIRBY, MSc - FOUNDER NEW MEXICO & CALIFORNIA: ZIA QUEENBEES & INSTITUTE OF AMER. INDIAN ARTS.
- (2) MEGAN MAHONEY TEXAS & NORTH DAKOTA: MAHONEY BEES & QUEENS.
- (3) ANGE ROELL FLORIDA & MASSACHUSETTES: THEY KEEP BEES.
- (4) JOHN JACOB OREGON & CALIFORNIA: OLD SOL APARIES.
- (5) AIDEN WING- CALIFORNIA: WINGS OF NATURE BEES.
- (6) SAM COMFORT FLORIDA & NEW YORK: ANARCHY APARIES.
- (7) EMILY BONDOR- CALIFORNIA: SANTA CRUZ BEE CO.
- (8) MARK SPITZIG- NEW MEXICO & CALIFORNIA: LONGEVITIES.
- (9) TUCKA SAVILLE- FLORIDA & NEW YORK: TUCKA BEE LLC.
- (10) ERIC MCEWAN OREGON & CALIFORNIA: DIGGIN' LIVIN' APARIES.
- (11) ZACHARY LAMAS, PHD - VERMONT & USDA-ARS BELTSVILLE, ROCK STAR QUEENS
- (12) CARL CHESICK- NORTH CAROLINA: CENTER FOR HONEY BEE RESEARCH.
- (13) ETHEL VILLALOBOS, PHD- UNIV. OF HAWAII
- (14) BRANDON HOPKINS, PHD- WASHINGTON STATE UNIV.
- (15) JUDY WU-SMART, PHD- UNIV. NEBRASKA-LINCOLN.
- (16) JULIANA RANGEL, PHD- TEXAS A&M.
- (17) GARETT SLATER, PHD- USDA-ARS BATON ROUGE.
- (18) KAIRA WAGONER, PHD- UNIV. NORTH CAROLINA- GREENSBORO
- (19) JULIA MAHOOD - GEORGIA MASTER BEEKEEPER
- (20) ROBYN UNDERWOOD, PHD- PENN STATE UNIV.
- (21) MARGARITA LOPEZ-URIBE, PHD- PENN STATE UNIV.
- (22) MEGAN MILBRAITH, PHD- MICHIGAN STATE UNIV.
- (23) BROCK HARPUR, PHD- PURDUE UNIV.
- (24) ELLEN TOPITZHOPFER, MSc - OREGON STATE UNIV.

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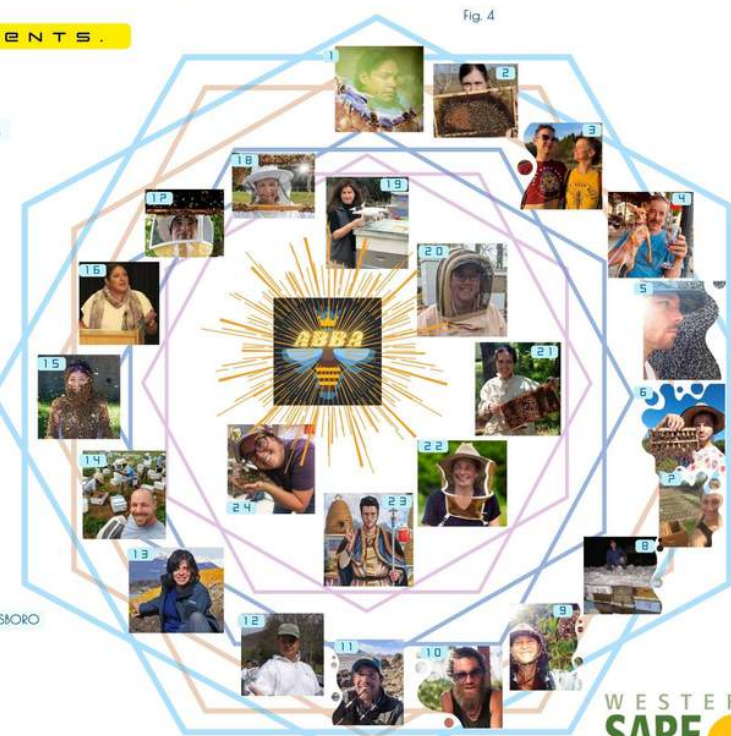


Fig 4



Adaptive Bee Breeding: Techniques & Philosophies for the Future

April 3, 2021 10am-3pm MST
Webinar

With presentations and Q & A panel featuring



Megan Mahoney- TX/ND
Mahoney Bees & Queens



Melanie Kirby- NM/WA
Zia Queenbees Farm & Field Institute



John Jacob- OR
Old Sol Enterprises



Erik McEwen- OR
Diggin' livin' Apiaries



Ange Roeil- MA/FL
They Keep Bees



Emily Bondor- CA
Santa Cruz Bee Co.



Zach S. Lamas- MD
RockStar Queens



Tucka Bee-FL/NY
Tucka Bee



Aiden Wing- CA
Wings of Nature Bees



Sam Comfort- NY/FL
Anarchy Apiaries



Mark Spitzig- MI/NM
LonghornBees

Cost: \$40
*Scholarships available, Email: info@nectarnomad.com
Register: <http://bit.ly/nectarnomad>



NEW MEXICO
COMMUNITY CAPITAL

ADAPTIVE BEE BREEDERS ALLIANCE

Building comb between the field and the lab
~ from Castle to Castle ~



PennState
College of Agricultural Sciences



Department of Entomology



ATM



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College of Agricultural Sciences



PURDUE
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College of Agriculture



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GREENSBORO



MICHIGAN STATE UNIVERSITY
EXTENSION



CENTER FOR HONEYBEE RESEARCH
Albemarle, NC USA







In response to a 2014 Presidential Memorandum to: "engage State and tribal environmental, agricultural, and wildlife agencies in the development of State and tribal pollinator protection plans"



Basic information

This Memorial will formalize the New Mexico State Beekeepers Association's (NMBKA) Pollinator Protection Plan (PPP). This plan is a collaboration between all stakeholders (pesticide applicators, farmers, landowners, beekeepers, and others) to protect pollinators through the establishment of best management practices.



Important Facts

1. A working group will be established to enhance pollinator health through community education and outreach, and data collection.
2. This working group will collect data annually on the number of both hobbyist and commercial beekeepers and managed honey bee colonies in the state of New Mexico.
3. Data collection can help groups such as the New Mexico Department of Agriculture, NMBKA, and others request funding for research and other projects.

The Intention of PPPs

PPPs give states the opportunity to bring stakeholders together in a collaborative effort to protect pollinators outside of a regulatory infrastructure. These plans can be tailored to each state's specific needs and circumstances.

Education, Outreach, and Data

This Memorial will provide groundwork for future collaborations and efforts to protect pollinators.

To view NMBKA's full Pollinator Protection Plan and to sign Letters of Support go to nmbeekeepers.org/ppp or use this QR code



SUPPORT HM33



NM POLLINATOR PROTECTION PLAN WORKING GROUP



POLLINATORS SUPPORT OUR FOOD SYSTEMS, NURTURE BIODIVERSITY, & FEED OUR DIVERSE CULTURES ACROSS OUR ENCHANTED LANDS. LET'S VOTE YES TO NURTURE THEM, TOO!



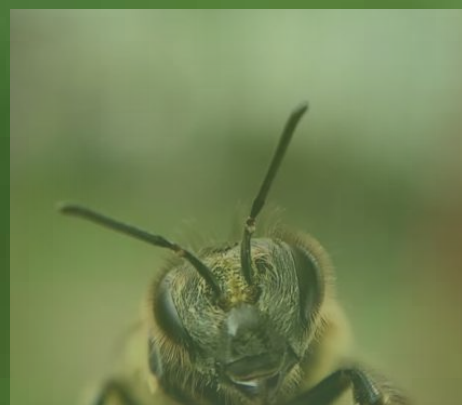




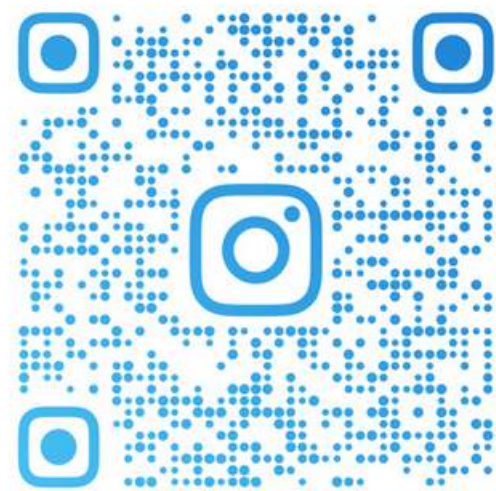
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THANK YOU



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