

Nature and Human Health-Utah

Mid-term Progress Report for the REI Cooperative Action Fund

August 29, 2023

Submitted by: Nalini Nadkarni, Tim Brown, Dorothy Schmalz, and Myra Gerst

<https://www.natureandhealthutah.org/>

1. Impact. How is your organization currently defining and measuring success?

We define success by whether our actions serve our mission

To articulate and foster critical links between nature and human health by providing a collaborative arena in which representatives of diverse societal sectors can equitably engage, share ideas, formulate actions, and implement solutions.

A central part of our work is to increase the accessibility of nature to people who have traditionally lacked access to nature, and who would benefit from extended engagement with nature

Success is determined by assessing whether our actions meet our five stated priorities, as articulated in our Nature and Human Health-Utah (NHH-UT) proposal. Below, we state each priority and describe how we measured our progress and what we have accomplished. We then discuss how this will inform future actions.

Priority 1. Develop organizational capacity: Strengthen NHH-UT's organizational structures and communication pathways; extend the number and diversity of members and associated organizations.

We have made progress on all aspects. At NHH-UT's outset, community awareness was very low, individual and organization membership numbers were low, our organization leadership was informal, and co-leadership roles were unclear.

1. Community awareness: Because of the youth of our organization at the time of REI funding, awareness of our group existed only through professional and personal contacts of co-leaders. Since then, our media reports, conference presentations, public events, and word-of-mouth have increased awareness, so that we have gained new members and have been approached by numerous organizational leaders for information and networking.
2. Increased membership. We have tracked attendance at all of our events – membership meetings, public events. Our membership has grown from **84 to 252** (3-fold increase in one year), belonging to **79 community groups** (Appendix 1),

representing academia, health, policy, environment, recreation, and other; and two academic institutional partners (Appendix 2).

3. Associated partners: We had no formal associates at beginning. We now have 53 researchers (Appendix 3), 30 community associates, and two academic institutional partners (Weber State University, Brigham Young University).
4. Organization structure: Multiple meetings of co-leaders led to organizational structure. Each co-leader has role: 1) membership services; 2) programs/events; and 3) external/academic relationship. Our Program Manager (half-time, with the balance supported by REI's Nature and Health Alliance) and Program Assistant (part-time) assist with both conceptual and logistical aspects. Our associated groups include members, community associates, researchers, academic institutions. We associate with state and national groups oriented to our mission (Appendix 4).
5. Administration of funding and logistics: The Parks, Recreation, and Tourism Department (co-leader Schmalz, Chair) and her administrative staff provide oversight of budget and payroll. Tracy Aviary provides seamless service and oversight as the NHH-UT fiscal agent.

Priority 2: Objectives: Develop compelling messages to diverse audiences:

We have implemented actions to fulfill this priority in four ways:

1. Membership meetings (ca. quarterly): At each meeting, we request informal feedback vocally, and on sign up sheets. We do not have data on diversity (e.g., ethnic), but plan for the future.
2. Public events: We hosted the visit of national-level speakers for a public event called "*Healthy Parks, Healthy People*" for our community at the Salt Lake Public Library (March 16, 2023). Two former Directors of the National Park Service provided an informative and compelling panel discussion for the public on the history and importance of enhancing equitable access to national park lands. Jon Jarvis expressed great enthusiasm, and an offer to help in the future, so we have access of his input in the future.
3. Op-eds in regional newspapers (Appendix 5).
4. Listserve: To facilitate informal exchanges among members, we initiated an NHH-UT listserv (through the University of Utah) on August 14, 2023. We distributed guidelines and instructions to all members.
5. We have presented papers at regional and national meetings (Appendix 6). A significant presentation was an invited plenary talk at the annual conference of the Utah Outdoor Recreation Agency (Kamas, WA), where we also tabled NHH-UT materials, and the keynote talk at the Intermountain Sustainability Symposium, at Weber State University.
6. Website (revision of original website, July 2023) We will be initiating analytics on our refurbished website (July 31, 2023)

7. Social media (initiated Instagram (July 28, 2023), with bi-weekly posts

Priority 3. Objectives: Implement pilot grants for engagement with diverse groups:

With complementary support from an anonymous donor, we have solicited, reviewed, and funded four pilot grants (\$10,000 each). We created an ad hoc committee from our membership to assist in the review and selection of these grants. The foci of all of these were to better understand the relationships between nature and nature-underserved public groups (homeless men, mental health patients, veterans, and seniors). Results to date have included peer-reviewed publications, presentations at academic conferences, and presentations at nature and human health-related meetings (Appendix 7).

Priority 4. Objectives: Disseminate results of pilot projects and NHH-UT activities to members and the public via a seminar series, an annual conference, and our NHH_UT website

We have fulfilled this objective in two ways:

1. October 2023 Conference (Oct. 4, 2023). We have organized and publicized a full-day public-facing Nature and Human Health-Utah Symposium, with 1) formal presentations by our pilot project awardees and 2) short presentations by invited community associates for networking (Appendix 8).
2. We have created a [Nature and Human Health-Utah](#) website, which is regularly updated by the Program Manager and Program Assistant.
3. We have established strong partnerships with other academic institutions. These constitute one-day visits to other campuses within Utah to inform them of our activities, learn how we might complement their ongoing work in this area, and promote membership in their students, faculty, and communities. We carried out a campus visit to Weber State University (Ogden, UT) in March, 2023, and are planning a similar visit to Brigham Young University (Provo, UT). Future visits in year 2 will include Utah State University (Logan, UT), Westminster College (Salt Lake City), and Southern Utah University (Cedar City, UT) (Appendix 9).
4. We are forging informal connections among people who contact us and other members and organizations, e.g., we connected an executive director of a local nonprofit with a researcher at the University of Utah).

Priority 5. Objectives: Reflect, evaluate, and distill results into a document and/or peer-reviewed paper that communicates "best practices and precepts" to guide the establishment of other NHH groups.

We've fulfilled this objective in three ways.

1. Landscape needs assessment. We have learned about existing resources for nature and human health; to identify the existing gaps, and to ascertain the directions and scope of our future work. This has entailed the following:

A) We carried out an informal needs survey of our membership in the first quarter, and learned that “facilitation of relationships and networking” is the largest gap we might fill.

B) We carried out a formal “landscape assessment” of regional organizations by initiating meetings with over 30 local community organizations, recreational groups, and government agencies (a subset of the membership organizations. Appendix). We conducted in-person or virtual interviews, resulting in summaries of each group’s mission, activities, needs, and requested services from NHH-UT (Example, Appendix 10).

C) Many groups and individuals had interests in connecting with academic researchers in areas associated with nature and human health, we make introductions to the pool of researchers associated with NHH-UT (Appendix 3).

2. We will present a paper and panel at the upcoming SHIFT meeting, aimed at nature and health researchers and practitioners (Bend, Oregon, September 7-14, 2023) on protocol and results of needs assessment. We anticipate writing a paper for a peer-reviewed journal about this process in the future.

3. We mentored individuals and “sister” groups (particularly NHH-Colorado) in how they might contribute to the field, referring them to our sources and contacts.

2. Please share a story, quote, or point of pride that captures the essence of your organization’s success over the grant period.

1. We became aware of how threads of our activities can connect as our organization matures. In July 2023, we published an op-ed in the Salt Lake City Tribune centered on the Nature and Health Alliance Planning Conference along with NHH-UT activities. We coordinated this with the University of Utah Media and Communication Office, who wrote a formal press release. That was disseminated to the UU campus via the “@theU” newsletter. It was amplified in the Salt Lake City metropolitan area, via an op-ed published by the largest metro newspaper, Salt Lake Tribune. That was read by a Utah legislature state representative, Rosemary Lessner, who voiced interest in and support of the topic. She invited us to meet with her, and our whole team met with her at the Utah State Capitol in early August. We invited her to be the keynote speaker in our annual NHH-UT Symposium on October 4, and she has accepted. This illustrates the interconnection of our activities.

2. NHH-Utah participated in the national-level Planning Conference of the Nature and Health Alliance (NHA) in March, 2023. The second day of the Conference was held at the Jordan River Nature Center (JRNC), part of the Tracy Aviary (NHH-UT financial sponsor). Participants were impressed with the inclusive nature of programs and location of the JRNC. One of the principal investigators of our pilot grants, Dr. Jeff Rose, shared preliminary results of his study on the relationships between health, nature, and men who are currently homeless, which took place on land adjacent to the JRNC. This “moment” demonstrated that small, local projects supported by a single state chapter can move our collective understanding of nature/health connections for underserved public groups to the attention and approval of this national group of esteemed researchers and practitioners.

3. How would you describe the impact this grant and/or your relationship with the Fund had on your organization over the grant period?

The impacts of this support is extremely strong and positive. In very short time (<1 year), our organization has moved from being a local “homegrown” informal group of volunteers to a formalized, recognized group to which others from many sectors are now coming for expertise and connections. Funds from REI have been critical, most importantly, the “hands on the ground” work enabled by the Program Manager and Program Assistant.

4. Shared Learning

- a. What reflections or lessons learned from the past year have helped your organization grow or improve that might also help other grantee partners leading similar work?
- It is essential to learn and listen to what other groups, institutions, and individuals are doing in this arena to avoid redundancy and replication of efforts. The major part of 2nd part of 1st year o has been to reach out to other groups from academia, NGOs, land resource agencies, healthcare groups, and policy-makers to understand what functions are most needed to augment and strengthen collective efforts in the field of nature and human health.
 - Local solutions are necessary. For instance, we’ve considered approaches taken by the Nature and Health-Washington gorup, and learned that we must modify them to better meet the needs of our audience (e.g., small gatherings at places like the nature center are better than bars for our audience).
 - It has been important to take a step back to strategize and be intentional about the efforts we are working towards to be able to work within our capacity and ensure our mission and objectives have a sustainable and lasting approach. This has led us to take the space of this first year before jumping into building a formal strategic plan. Now that we have nearly finished our landscape assessment, we are in a more informed position to know where our actions will best lie. Thus, in year 2, we anticipate carrying out a formal strategic planning process and establish an Advisory Board derived

frin representatives of the organizations we engaged in our landscape assessment.

- We are impressed by the degree of interest in this topic among community agencies, reserachers and individuals. People are hungry for new ways of thinking about old problems, particularly as it relates to both nature and to health.

5. What else would be helpful to push your work forward?

- To implement our prioritized actions, our actions, we require, as a minimum, support for a full-time Program Manager and a full-time Events and Outreach Coordinator.
- We appreciate that the REI Fund wishes to support other groups in the future, guidance in pursuing other sources of future support would be useful for sustaining our work in the long-term. Gaining access to foundations requires establishing relationships with foundation staff, so introductions and guidance would be helpful.
- Our needs assessment suggested that more links to academia is an existing gap, so funds to support graduate student research or practition projects would increase both research and connections to faculty. We have been invited to work with the University of Utah Environmental Studies Program to support a Masters student, a partnership in which they would provide tuition funds and academic oversight, and we would provide guidance and implementation funds (\$8,000/yr)
- We wish to continue interfacing at national level by maintaining exchange with the Nature and Health Alliance and participation at national conferences.

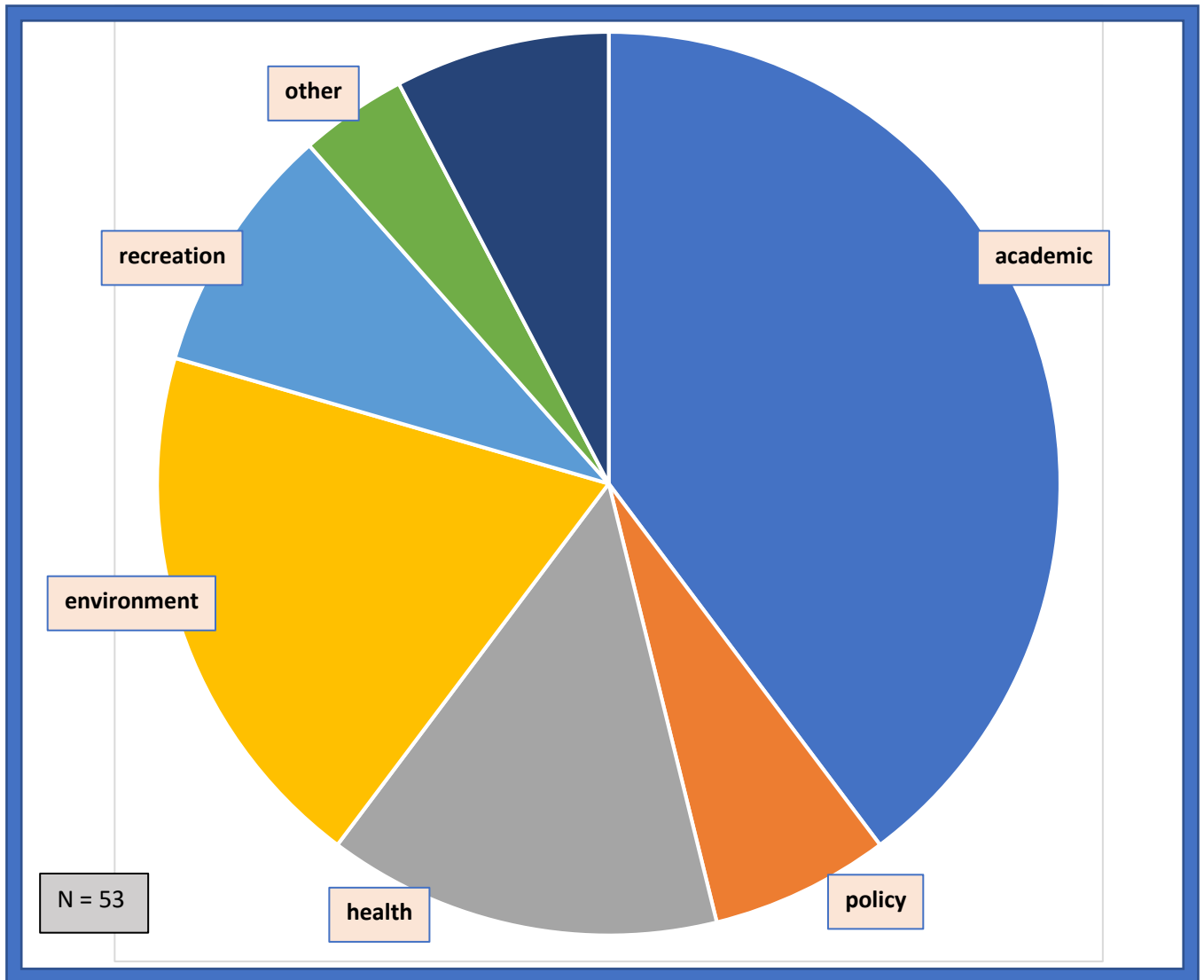
6. Anything else you'd like to share with the Fund team?

We are very grateful for the support of the REI Fund. It has provided both the critical financial and psychological boosts we have needed to elevate and sustain these efforts.

Appendix 1. Organizations represented in NHH-UT membership

U of U (City and Metro Planning)	Discovery Ranch Mental Health
U of U (Mathematics)	Nature Quant
U of U (Environmental Sustainability)	Intermountain Health
U of U (Parks, Recreation, Tourism)	Huntsman Mental Health Institue
U of U (Biology)	Summit County Health Department
U of U (Family Consumer Science)	Utah Physicians for a Healthy Environment
SLCC (Criminal Justice)	HEAL Program, UDOH
U of U (Psychology)	Salt Lake County Health Department
SLCC (Engineering and Mathematics)	Tree Utah
U of U (Geography)	Nature Conservancy
U of U (Health Pharmacy)	Tracy Aviary
Weber State (Zoology)	Sierra Club
U of U (Social Work)	Wasatch Gardens
University Neighborhood Partners	Conserve Utah Valley
Natural History Museum	Utah Clean Energy
USU (Community Engagement)	Wildlands Network
U of U (Environmental Humanities)	Sageland Collaborative
U of U (External Relations + Development)	Wild Utah Project
Westminster (Biology)	HEAL Utah
U of Wisconsin (Recreation)	Mobile Moon Co-op
U of U (Global Engagement + Risk Management)	Red Butte Gardens
U of U (Anesthesiology)	Ogden Nature Center
U of U (Huntsman Cancer)	Save our Canyons
U of U (Psychiatry)	Westside Tree Planing Initiative
Westminster (Environmental Studies)	National Park Service
U of U (Dance)	SLC Public Lands Dept
U of U (College of Medicine)	Trails Utah
CSU (Natural Resources Dept.)	Snyderville Basin Special Recreation District
U of U (Sociology)	Wasatch Adaptive Sports
Weber State University (SPARC)	Utah Division of Outdoor Recreation
Weber State University (Neuropsychology)	Bike Utah
Salt Lake City Mayor's Office	SLC Veteran's Affairs
Leavitt Group	National Ability Center
SWCA Environmental Consultants	Justice Outside
Millcreek City Council	Jordan River Commission
Department of Public Lands	STEM Community Alliance
Get Healthy UT	AMD Architecture
Utah Chapter of the Society of Public Health	Flybook Reservation Software
Mindful Mountain Wellness	NEMSIS
Salt Lake Regional Medical	

Appendix 2. Categories of NHH-UT Membership Affiliations

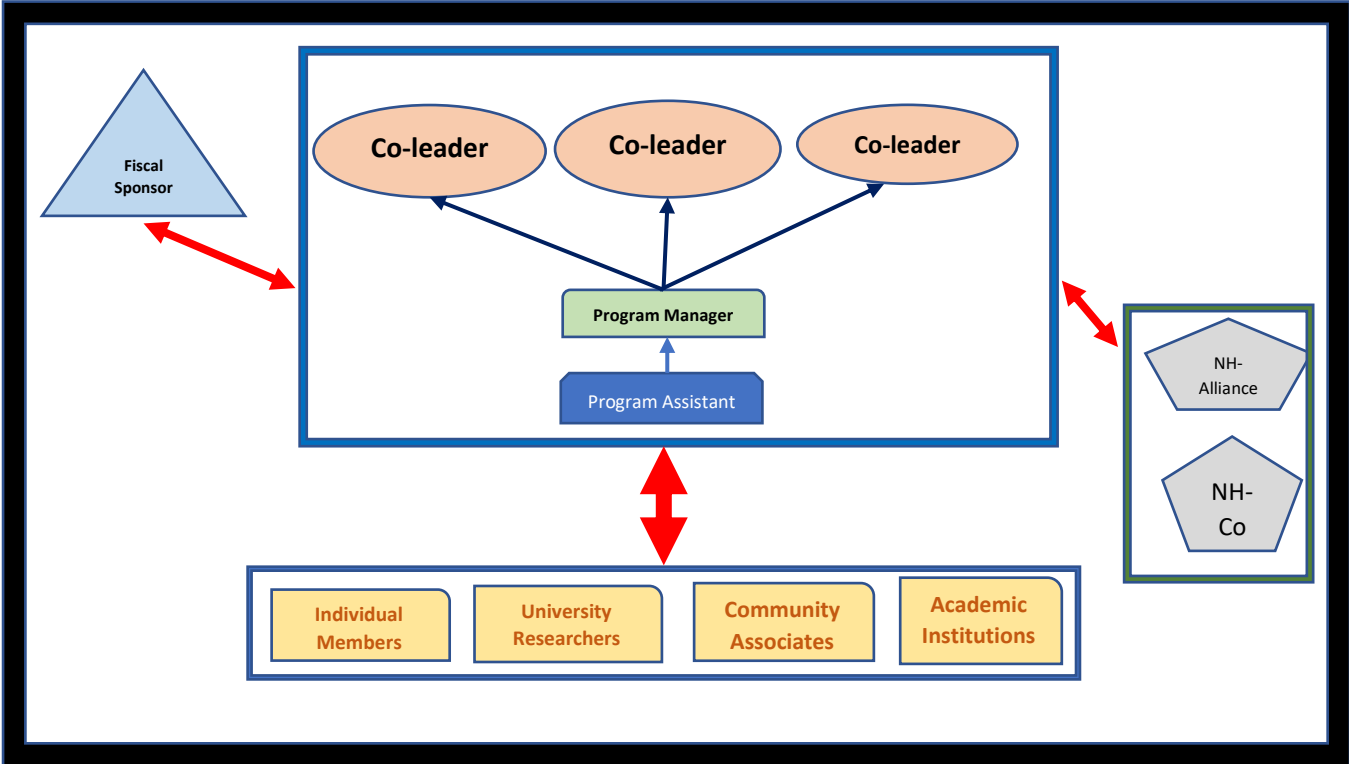


Appendix 3. NHH-UT Associated Researchers

Nature and Human Health-Utah: Associated Researchers				
Contact: Myra Gerst, Program Manager (myra.gerst@utah.edu)				
First Name	Last Name	University	Department	Research Focus
Andy	Hong	University of Utah	City + Metropolitan Planning	built environment and human health
Frederick	Adler	University of Utah	Mathematics	complex systems
Adrienne	Cachelin	University of Utah	Environmental Sustainability	critical sustainability
Alessandro	Rigolon	University of Utah	City + Metropolitan Planning	equitable community planning
Aiko	Yoshino	San Francisco State Univ	Recreation, Parks and Tourism	
Alice	Mulder	Weber State University	Geography Env & Sustainability	human-environment interactions
Aminda	O'Hare	Weber State University	Psychology and Neuroscience	event-related potentials techniques
Brenda	Bowen	University of Utah	Global Change and Sustainability	how changing environmental conditions
Brijette	Williams	University of Utah	Environmental Humanities	Environmental equity, water conservation and creative community engagement
Bruno	Porras	University of Utah	School of Medicine	use of digital mental health interventions
Christina	Yong	University of Utah	Health Systems Innovation and Research	Equitable access to healthcare
Christy	Bills	University of Utah	Natural History Museum of Utah	Invertebrate Collections
m	Clay	Westminster University	Biology	environmental urban constraints
Cheri	Daily	University of Utah	Global Engagement	International affairs
Julia	Corbett	University of Utah	Communications and Environmental Humanities	Human relations with the living world
Danielle	Endres	University of Utah	Environmental Humanities	environmental communication
Dorothy	Schmalz	University of Utah	Parks, Recreation and Tourism	influence of prejudice and discrimination
David	Belnap	University of Utah	Biology	structure of viruse
David	Curtis	University of Utah	Family and Consumer Studies	human development and public policy
David	Robles	Salt Lake Comm College	Public Safety Education and Training	criminology, victimology, justice studies
David	Strayer	University of Utah	Cognition and Neural Science	human multitasking ability
David	Mcnay	University of Utah	Parks, Recreation and Tourism	mental health impacts of nature exposure
Diane	Pataki	University of Utah	City and Metropolitan Planning	human-environment interactions
Edward	Ruddell	University of Utah	Parks, Recreation and Tourism	landscape perception
Emmanuel	Santa-Martinez	Salt Lake Comm College	Biology	Botany and entomology

Erin	O-Brien	Utah Tech University	Biological Sciences	plant physiological ecology
Genevieve	Atwood	University of Utah	Geography	effects of coastal processes o
Heather	Nyman	University of Utah	Pharmacy	Acute care internal medicine
Jack	Longino	University of Utah	Biological Sciences	taxonomy and systematics of ants
Jade	Rijsketic	University of Utah	U of U Health	Behavioral sleep medicine
Jeff	Rose	University of Utah	Parks, Recreation and Tourism	political ecology
Jennifer	Shah	University of Utah	Environmental Sustainability	effects of global change
Joanna	Bettman Schaefer	University of Utah	Social Work	outdoor interventions
John	Pearson	University of Utah	Anesthesiology	anesthesia services for patients
Kaedyn	Crabtree	University of Utah	Cognition and Neural Science	virtual reality research
Kelly	Bricker	University of Utah	Parks, Recreation and Tourism	sustainable forms of tourism development
Kevin	Rathunde	University of Utah	Family and Consumer Studies	human developmen/itortance of play
Lindsay	Collin	University of Utah	Public Health	disparities in mortality in cancer patients.
Liz	Joy	University of Utah	School of Medicine	Exercise, women's health, & eating disorders
Lisa	Thompson	University of Utah	Natural History Museum of Utah	Exhibit development and interpretive planning
Matt	Haber	University of Utah	Biological Sciences	conceptual issues in systematics
Amy	Mcdonnell	University of Utah	Psychology	cognitive benefits of nature
Maximillan	Werner	University of Utah	Writing and Rhetoric Studies	environmental writing
Nalini	Nadkarni	University of Utah	Biological Sciences	ecology of forest canopies
Nayum	Kil	University of Wis	Rec Management	nature impacts on health and wellbeing
Phyllis	Coley	University of Utah	Biological Sciences	evolution of tropical rainforests
Sarah	Hinners	University of Utah	City + Metropolitan Plannng	roles of nature in around cities
Sondra	Stegenga	University of Utah	Special Education	open science / early intervention
Tallie	Casucci	University of Utah	Kinesiology	outdoor sports and wellbeing.
Theresa	Martinez	University of Utah	Sociology	issues of race/class/gender/sexuality
William	Marchand	University of Utah	Psychiatry	role of the cortico-basal ganglia brain circuits
Yehua	Wei	University of Utah	Geography	globalization and urbanization
Yoshio	Nakamura	University of Utah	Anesthesiology	mind-body interactions.

Appendix 4. Organizational structure for NHH-UT





B6 Sunday, Jul. 9, 2023

Equitable access to outdoors will improve conservation, health in Utah and beyond

A walk in the woods, in the desert or even a city park can boost both your mood and your health, but access to nature isn't always equal.

A group of scientists, health care researchers and community practitioners, including nearly a dozen representatives from the University of Utah, want to change that. We've formed the Nature and Health Alliance (NHA), a new research and practice collaborative group comprised of scholars, educators, practitioners and community members, with the goal of getting more people outside.

A growing body of research has revealed links between nature exposure with physical, emotional and mental health. Even short periods of time engaging with nature can reduce anxiety and stress, improve cognitive function and enhance social interactions. But myriad questions remain about nature's beneficial effects and who gets access to those benefits. We know that not everyone has access to nature and outdoor activities and the health-enhancing benefits they bring.

With support and financial backing from the REI Cooperative Action Fund, the alliance is bringing together bright minds and passionate spokespeople in the burgeoning field of nature and human health to raise awareness of the health benefits of engaging with nature. We aim to create a national movement as we expand understanding of the importance of access to nature for everyone.

Our initial work is bridging disciplines that typically have few "cross-points" — medical researchers, representatives of community organizations, educators training the next generation of health care workers and people figuring out ways for insurance companies to cover the costs of gaining benefits of nature services.

In addition to REI and U. faculty, the alliance includes representatives from Harvard University, the University of Washington, Texas A&M, the University of Vermont, Houston Methodist University, UCLA, the University of Maryland and the University of California San Francisco.

Our new movement is inspired by pioneering work to connect nature and health at the University of Washington. In 2019, those interdisciplinary efforts also sparked the creation of a state chapter, called "Nature and Human

Health-Utah," which is now also supported by the REI fund.

All of the participants in the alliance have a very real commitment to groups of people who have been underserved by nature before — not only particular ethnic groups who have lacked access to the health benefits of nature, but also groups with physical limitations that make getting outside difficult, such as people with disabilities, senior citizens and incarcerated individuals.



**NALINI
NADKARNI**

Emerging collaborations promise new ways of looking at both human and planetary health, with research helping to shape understanding, expand outreach and foster engagement. Our first meeting, held at the University of Utah campus this spring, showcased the knowledge sharing that is already happening.

Jeff Rose, an assistant professor in the Department of Parks, Recreation and Tourism and College of Health, discussed early findings from his research on relationships between nature and people who experience homelessness. And Tracy Aviary staff shared how they are devoting funds and staff resources to promote access to nature for groups who have lacked such connections in the past, particularly those who live on Salt Lake City's west side.

We are also exploring pathways to create reciprocal actions for nature and health. We understand that recognition of the health values of nature can stimulate a greater sense of protection and conservation of nature.

Our objectives aren't just on paper. They are things we can accomplish now and that will work for the diverse geographies and cultures reflected by alliance members.

Scientists are people, and what's more personal than the topic of human health and nature? Our initial gathering set the stage for a collaborative, cross-disciplinary effort for the group in the years to come. We believe our collective work from this event will contribute to the improved health of our human communities and of our planet.

Nalini Nadkarni is a professor emerita in the School of Biological Sciences at the University of Utah. Learn more about the alliance at www.NatureAndHealthAlliance.org.

Salt Lake City should invest in ‘messy-looking’ natural areas

Salt Lake City is growing rapidly. Much of our focus is on building homes and livable communities for humans. We have seen investment in more vertical development, and in city parks that enhance and support quality of life. But soccer fields are not nature, and we need to be thinking equally about preserving and expanding “homes” and habitat for other living things. We must also invest in the “messy-looking” natural areas as well.

The world has witnessed a drastic decline in our pollinator species, including the monarch butterfly, whose western population across North America has dropped more than 80% in 30 years. One key reason for that decline is loss of breeding and overwintering habitat. Monarchs rely on a single species of plant, milkweed, for survival. Habitat that used to be plentiful decades ago no longer exists, as agricultural fields have become subdivisions and commercial properties.

The monarch is the only insect that carries out a two-way migration, traveling up to 3,000 miles to reach overwintering habitat in Mexico or California. They clump together in pine trees to stay warm, living off bodyfat, and in spring migrate back to Texas, Arizona and inland California to find breeding habitat, creating the first generation of the new season. With the smaller western population collapsing at a faster rate, Utahns are at risk for not enjoying monarchs here at all.



RACHEL TAYLOR



LEWIS KOGAN



SOREN SIMONSEN



NALINI NADKARNI

Over the past three years, Salt Lake City created a successful monarch butterfly and pollinator habitat pilot project around the pond at Fairmont Park — the first of its kind for the city. With funding and staff support from the Utah Division of Wildlife Resources (DWR) and the Watershed Restoration Initiative, Utah Friends of Monarchs, Salt Lake City’s Public Lands Department and the DWR collaborated to restore the park’s pond and natural springs and replant many species of native wetland plants. The habitat was immediately successful attracting monarchs, hummingbirds and a variety of bee species, as well as many human admirers.

For residents in the Sugar

House neighborhood, their nearby outdoor environment would have been no more interesting than an expanse of Kentucky bluegrass, and a collection of sport courts. Now, they have access to a thriving natural area buzzing with pollinators and other animals that can coexist well with humans in our urban environment. Neighborhood children can witness butterflies feeding from a milkweed blossom, peer under rocks for caddisflies in the flowing spring water and observe native bees on colorful flowers in bloom from June to October. The pond now attracts kingfishers and cormorants to feed on the trout at this new public fishery.

We need to re-think our parks and public lands to create

“ We need to re-think our parks and public lands to create opportunities that serve multiple purposes. Establishing these natural areas not only allows for the survival of diverse species of plants, animals and pollinators critical to our web of life, they also benefit people.”

opportunities that serve multiple purposes. Establishing these natural areas not only allows for the survival of diverse species of plants, animals and pollinators critical to our web of life, they also benefit people. Hundreds of studies have proven that time spent in nature is measurably beneficial to human physical and emotional health. In addition to offering ball fields and monkey bars, our parks can play a critical role in restoring nature in many places where it has been lost a truly healthy environment and all that belongs in it.

Salt Lake City’s Public Lands Department is currently considering establishing a native plant center along the Jordan River in the Rose Park neighborhood, in Salt Lake City’s west side. The proposed site would include a farm and greenhouse dedicated to restoring native plants that once thrived in this valley, growing plants for use in pollinator habitat restoration projects in parks across the city. The site would include a public education and research facility to make this vital work more accessible to the public, study

and improve restoration methods, and facilitate interagency collaboration for improving the environmental health of our urban public spaces.

Although the monarch butterfly is now a candidate for the Endangered Species List, Fairmont Park has attracted some of these amazing monarchs, and is giving them a fighting chance. We urge Mayor Erin Mendenhall and the Salt Lake City Council to continue to build on this success by funding the native plant center at the Jordan River and demonstrate the city’s leadership as an ecologically inclusive city.

Rachel Taylor is the founder of Utah Friends of Monarchs and a board member of Western Monarch Advocates. **Lewis Kogan** is the former director of Planning & Ecological Services for Salt Lake City Public Lands. **Soren Simonsen** is a city planner and designer, and executive director of the Jordan River Commission. **Nalini Nadkarni** is a professor emerita of biology at the University of Utah and a co-founder of the Nature and Human Health-Utah group.

Appendix 6. Presentations at Meetings and Conferences

- N. Nadkarni, N. Keynote talk; NOVA Institute Annual Conference: Flourishing Futures: People Places Planet (Virtual) Dec. 1, 2022: Keynote talk: "*Tapestry Thinking: An ecologist's perspective on finding a path through the Anthropocene*"
<https://novainstituteforhealth.org/tapestry-thinking-for-flourishing-futures/>
- N. Nadkarni, N., T. Brown, D. Schmalz, & M. Gerst. Sept. 12, 2022. Utah Outdoor Recreation Summit, Kamas, UT. Keynote Presentation; "*Weaving Academia and Society to Advance Nature and Human Health in Utah and Beyond.*"
- N. Nadkarni. April 6, 2023: Keynote speaker at SciTalk Conference, Portland, OR
- N. Nadkarni. April 22, 2023: Keynote speaker at Earth Day event, Reed College, Portland, OR
- N. Nadkarni. June 12, 2023: Keynote speaker at Biodiversity Funding Group Annual Meeting, Park City, UT
- N. Nadkarni. March 16, 2023. Keynote speaker at the Intermountain Sustainability Symposium. "*Connecting and Amplifying Ways of Knowing to Weave a Tapestry of Sustainability*" Weber State University, Ogden, UT.

1. A Randomized Control Pilot Study of Nature Immersion for Veterans with Posttraumatic Stress Disorder

Tracy Herrmann, PhD, MS, RD, Research Program Manager, Whole Health Services, VA Salt Lake City Health Care System, University of Utah; William Marchand, MD, Clinical Professor of Psychiatry, University of Utah School of Medicine; Joanna Bettmann Schaefer, PhD, LCSW, Professor of Social Work, Univ. of Utah; Elena Nazarenko, MS, Senior Data Analyst, VA Salt Lake City Health Care System

Project Focus. This study is designed to help meet the critical and growing mental health care needs of veterans with PTSD, an area at the forefront of public health concern. Many veterans avoid treatment due to the perceived stigma with using mental health services, that are provided almost exclusively in medical or clinical settings. Left untreated, PTSD can lead to functional, social, and occupational impairment, thereby lowering their quality of life. Greater flexibility in treatment delivery is needed to reach veterans with PTSD who are unwilling to access treatments through prevailing service delivery models. To respond to this critical need, we developed a novel group intervention to be delivered “outside clinic walls” in a nature-based setting. This novel group intervention immerses veterans in nature while practicing nature connectedness, sense, and savoring exercises, as well as group sharing and refection. The literature suggests being in nature reduces anger, fear, and stress and increases pleasant feelings. Our nature intervention called NatureCALM may increase veterans’ positive emotions, restore their mental health, and improve their quality of life, by optimizing treatment and PTSD outcomes

2. The effects of nature-immersive experiences on social, mental, and physical health in adults with mental illness or symptoms of mental illness

Joanna Bettmann Schaefer, Ph.D, LCSW, Professor of Social Work, University of Utah; Adam Hanley, Ph.D, Assistant Professor of Social Work, Univ of Utah; Scott Couch, doctoral student in Parks, Recreation, & Tourism, Univ. of Utah, Ellison Stagaman, masters student in Kinesiology & Social Work, University of New Hampshire; Dorothy Schmaltz, Ph.D, Associate Professor of Parks, Recreation, & Tourism, Univ. of Utah

Project Focus: The objectives of this project are to yield information about what doses of nature immersion are impactful on mental health symptoms, producing recommendations for health and mental health practitioners. The project also aims to illuminate how mental illness symptomology, more widespread than psychiatric diagnoses, responds to nature exposure. The project intends to produce recommendations for health and mental health practitioners nationally regarding which dosages of nature exposure are meaningful in reducing mental health symptoms. Because the meta-analysis included studies of urban nature, not just wilderness exposure, and nature exposure as little as 10 minutes, findings from the present study have important implications particularly for low-income adults with mental health concerns who may have less access to green spaces and wilderness environments. The authors aim to present and publish the data to health care practitioners who might consider prescribing nature exposure in order to address patient mental health concerns.

3. Homelessness, Health, and Nature: A Community-Based Research Partnership

Jeff Rose, Ph.D. Department of Parks, Recreation, and Tourism; Univ. of Utah; Anne Terry, Director of Education for Tracy Aviary and the Jordan River Nature Center; Sarah Canham, Ph.D., College of Social Work; University of Utah

Project focus: People experiencing both sheltered and unsheltered homelessness are vastly overrepresented among subgroups who suffer from a number of physical and mental health concerns, including shorter life expectancy, higher morbidities, greater usage of acute hospital services, increased cardiovascular disease, increased diabetes, increased depression, increased likelihood of a history of sexual trauma, and so on. At the same time, people experiencing homelessness (PEH) suffer from substantial negative stigma associated with their status as being unhoused, resulting in increased isolation and persecution. On the ecological side, the Jordan River is a long-neglected environmental resource that is in need of increased attention and engagement from a variety of local communities. This project seeks to implement and evaluate the contributions of nature-based educational and recreational experiences to measures of health and wellbeing for PEH. Additionally, this project will help determine what skills and techniques from existing Jordan River advocates and educators can support better engagement with PEH communities.

4. Nature Rx Pilot: Identifying barriers and facilitators to implementing nature-based mental health interventions for older adults.

Andy Hong, Assistant Professor, Department of City & Metropolitan Planning, College of Architecture + Planning, Univ. of Utah; Alessandro Rigolon, Assistant Professor, Department of City & Metropolitan Planning, College of Architecture + Planning, Univ. of Utah; Michelle Sorweid, Clinical Assistant Professor, Division of Geriatrics, Department of Internal Medicine, Univ. of Utah School of Medicine,

Project focus: This pilot project focuses on identifying older people's unique challenges and needs when designing nature-based mental health interventions for older adults. Our specific aims are to: 1) develop and pilot test a nature-based prescription program focused on improving the mental health of older adults by working with a geriatric clinic and local community partners; 2) identify barriers and facilitators to implementing the pilot program using a photovoice method with older adults; and 3) create an implementation plan and guidelines for integrating nature-based interventions into the health care systems. The framework developed within this project will be utilized for a larger clinical trial of nature-based mental health interventions for older adults in Utah.



**NATURE AND HUMAN HEALTH UTAH:
RESEARCHING AND NETWORKING SYMPOSIUM**

SAVE THE DATE

OCTOBER 4TH 2023

9-3pm, University of Utah Alumni House

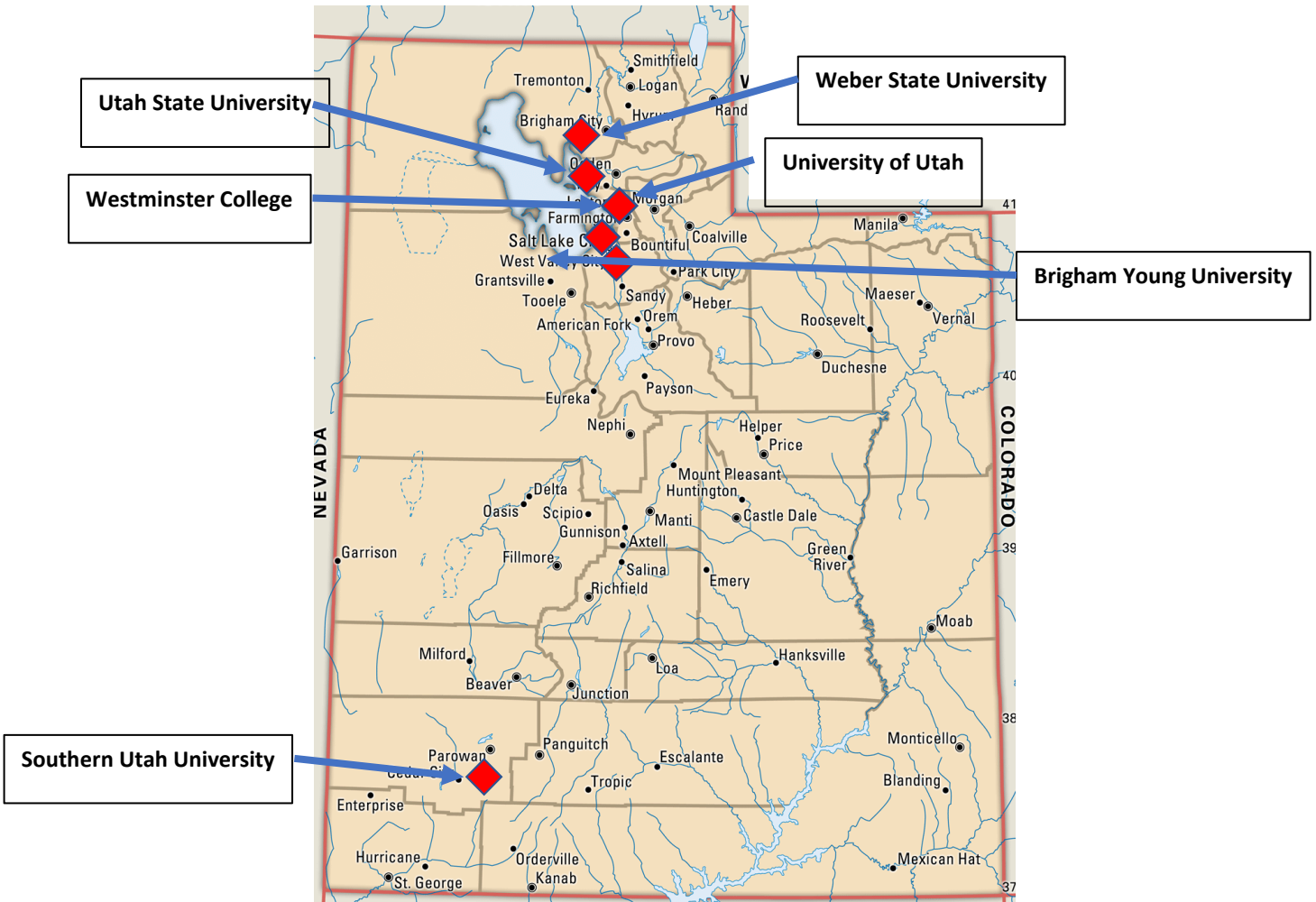
ABOUT THE SYMPOSIUM:

- Hear presentations from our pilot grant recipients
- Network with and learn from organizations that are connected to the field of nature and human health
- Learn about our upcoming grant opportunities

FOR MORE INFORMATION:
Email: myra.gerst@utah.edu
Web: natureandhealthutah.org

**Appendix 9. Academic Institutions in Utah with whom NHH-UT has current or future affiliations
2023-2025**



Appendix 10. Example of Community Associate Description for Landscape Assessment

Nature and Human Health UT

Community Associates Initial Meeting

Name of Organization: Get Healthy UT

Meeting Information:

Prepared by: Myra Gerst

Date of Meeting: 8/1/2023

Location of Meeting: Get Healthy UT office

Organization Information:

Name of Organization: Get Healthy UT

Description of Activities: Get Healthy UT is focused on changing policy and infrastructures throughout the state of Utah that allow Utahns to ensure healthy options are the default options. They do this through supporting local cities in developing a Healthy City Designation program which is designed to bring together stakeholders across sectors to work towards improving health outcomes specifically related to healthy food access, increasing physical activity, and improving mental health outcomes. They are also committed to conveying evidence-based strategies to communities across the state, but they want to push local communities to utilize the technical assistance provided by their health departments.

Mission Statement: To foster a culture of health through engaging multi-sector stakeholders, building partnerships, providing resources, and connecting efforts that support healthy eating, active living, and mental wellbeing.

Website: <https://gethealthyutah.org/>

Location: 2160 S 1300 E Ste 440, Salt Lake City UT

Contact

Name: Alysia Ducuara and Morgan Hadden

Role in organization: Executive Director and Program Coordinator

Email: alysia@gethealthyutah.org and morgan@gethealthyutah.org

Phone:

Other Contacts:

Partnership:

What work does this organization do related to the general field of nature and human health?

Get Healthy UT has recently begun working on projects which focus on improving built environment and infrastructure to promote physical activity and active transportation. They work with school districts to implement Parks Rx programs and advocate for more time outdoors, which unfortunately has recently been cut from funding/school programming. The four pillars of their organization are convening, education, amplifying, and advocacy. They are interested in working with city planners and researchers to support their programming and initiatives and aim to step away from the programmatic level and work more towards policy and infrastructure changes. In their community work, they aim to be hands off and focus instead on setting people up for success through cultivating relationships and connecting community leaders to resources.

What gaps or challenges does this organization face related to nature and human health?

The biggest gap they are facing is securing sustainable funding. They have recently had continuous funding from the state but that source was cut short so they are continuously looking elsewhere for funding and expansion. Additionally, as mentioned above, they are advocating for more time spent outside for school aged children, and working with communities to ensure schools have adequate green space and playgrounds for their students. This is a challenge as most business and organizations are looking for ROIs rather than the long-term investment of supporting children's physical, emotional, social and mental wellbeing.

In what ways could NHH UT support this organization's goals, objectives and programs?

As mentioned before, Get Healthy UT would like to connect with researchers and faculty to conduct focus groups and ensure the information they are sharing is up to date and evidence-based. Additionally, they are interested in connecting with faculty to get student support on programming and partner on capstone projects that fulfill graduation requirements. Because we are a university organization, we can connect Get Healthy UT to our contacts at the U and hopefully support with this initiative. Lastly, because they are focusing on built infrastructure, we can connect them with the REI Cooperative Action Fund to inquire about potential funding.

Suggestions for other potential collaborators/partners/people to connect with?

Parks Rx Utah

Local school districts

Cities that participate in Healthy City Designation

Division of Outdoor Recreation

Utah Nonprofits Association

Notes:

Get Healthy UT works to change policy and infrastructure to make Utah a healthy place to live and thrive. Although there is more work to be done within the realm of policy work, they do not necessarily suggest we enter into this space as are potentially "too many cooks in the kitchen" working in this space. They do suggest, however, we focus on research dissemination and provide summaries of the research that is being done that is accessible and digestible for community leaders and citizens. Additionally, they are interested in seeing more educational campaigns and social media presence to relay information,

such as the research summaries in order to advocate through education. If we do decide to work on the programmatic level, they suggest we work with kids and local schools to ensure children are getting outside and teachers are education children on the importance of being outdoors.