Tribal Perspectives on Indigenous / Western Science in a Native Sovereign Nation

Stuart Harris
Director,
CTUIR Dept. Science & Engineering

Conducting Research in Tribal Communit
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TOPICS

1. Sovereignty, history, psychology
2. Worldview
3. Examples of research projects

Chief Joseph (1840-1904) was born in the Wallowa Valley. The people were healthy and wealthy until evicted.

In his last years, Joseph spoke eloquently against the injustice of United States policy toward his people and held out the hope that America's promise of freedom and equality might one day be fulfilled for Native Americans as well. An indomitable voice of conscience for the West, he died in 1904, still in exile from his homeland, according to his doctor "of a broken heart."

Nez Perce Crossing


Today's reservation psychology largely results
from adverse consequences of manifest destiny

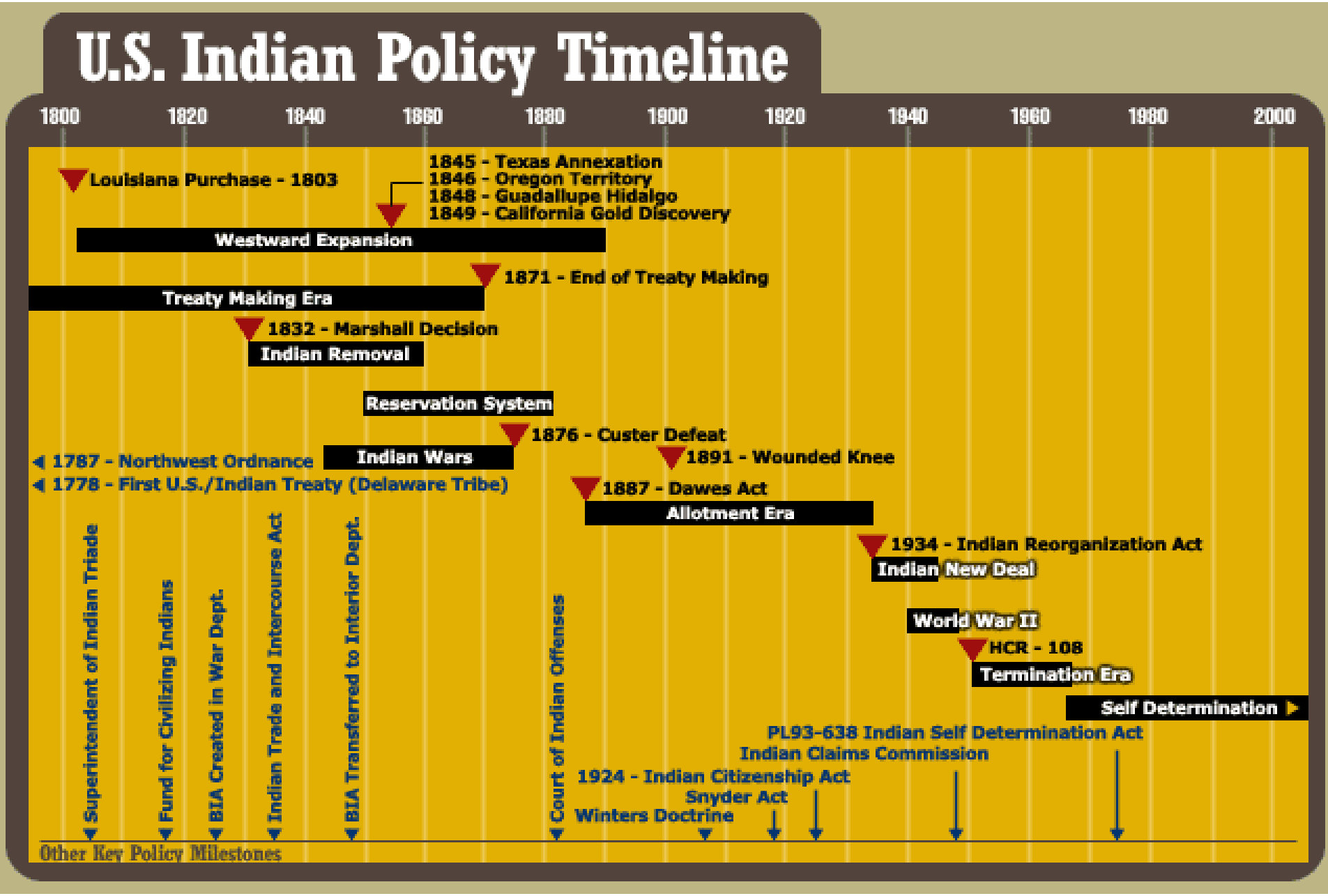
Manifest Destiny – spreading freedom, democracy, and enlightenment around the world.

Handing out smallpox blankets

Killing buffalo to starve Plains Indians

"Negotiating" with Indians

It was not until the 1879 Standing Bear trial that American Indians were recognized as persons in the eyes of the white man's law. Native Americans became US citizens in 1924. The Trujillo case in 1947 extended voting rights uniformly to Native Americans.



Indian law is a very active field still fighting to protect sovereignty, resources, health, and rights

Since time immemorial, we have lived on the Columbia River Plateau. Specifically, our homeland is the area now known as northeastern Oregon and southeastern Washington. Our three bands were brought together on the Umatilla Indian Reservation, established by a Treaty with the US Government in 1855. We were united as a single tribal government in 1949 when our leaders adopted our Constitution and By-laws.

Securing the Homeland

Governance for the people, by the people:

- Support the infrastructure for commerce
  - Provide services for the population
- Provide for the well-being of the people
- Set bounds, protect rights and resources

Truancy

Utilities

Voting

Land Base

Cultural Resources

Insurance

Clothing

Domestic violence

Connectivity, Communications

Language

Offices

Investments

Education

Shelter

Fairness

Religion

Social Services

Workforce

Water & sewer

Justice

Potholes and stop signs

Roads

Food

Emergency Preparedness

Clinic

Friends

Clean Water

Energy

Safety

Securing the Future

What is this heritage our grandparents died to secure and protect?

Homeland where the Creator put us

Food the Creator told us to eat

A language

A heritage

Skills and knowledge

Way of Life

Religion

Ways of thinking and naming and knowing

Identity

Celilo, destroyed 1957

What is a tribal “lifeway”?

Not quaint and colorful costumes at pow-wows
Not getting back to my roots on the weekend.
Not adding some wild foods to a western diet.

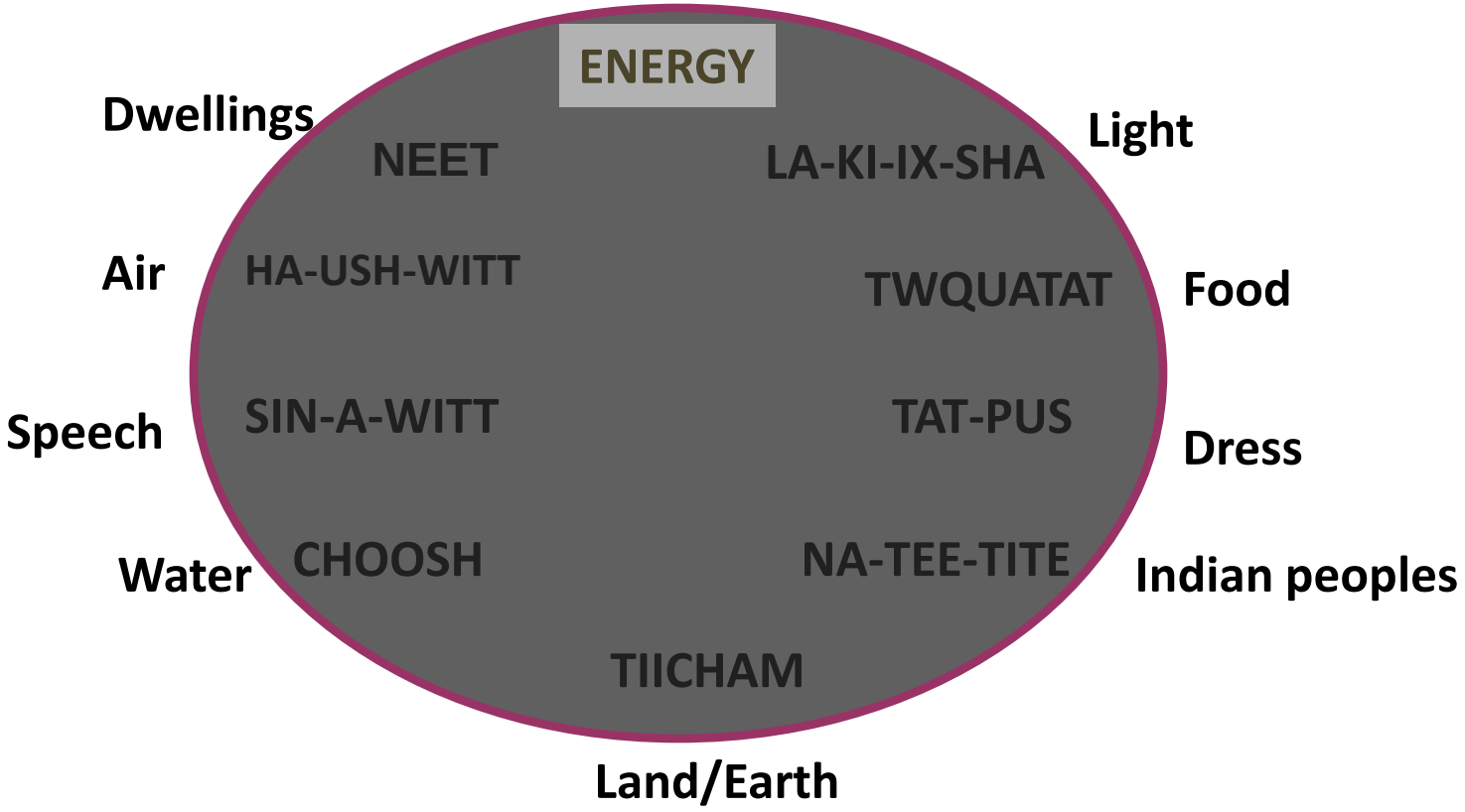




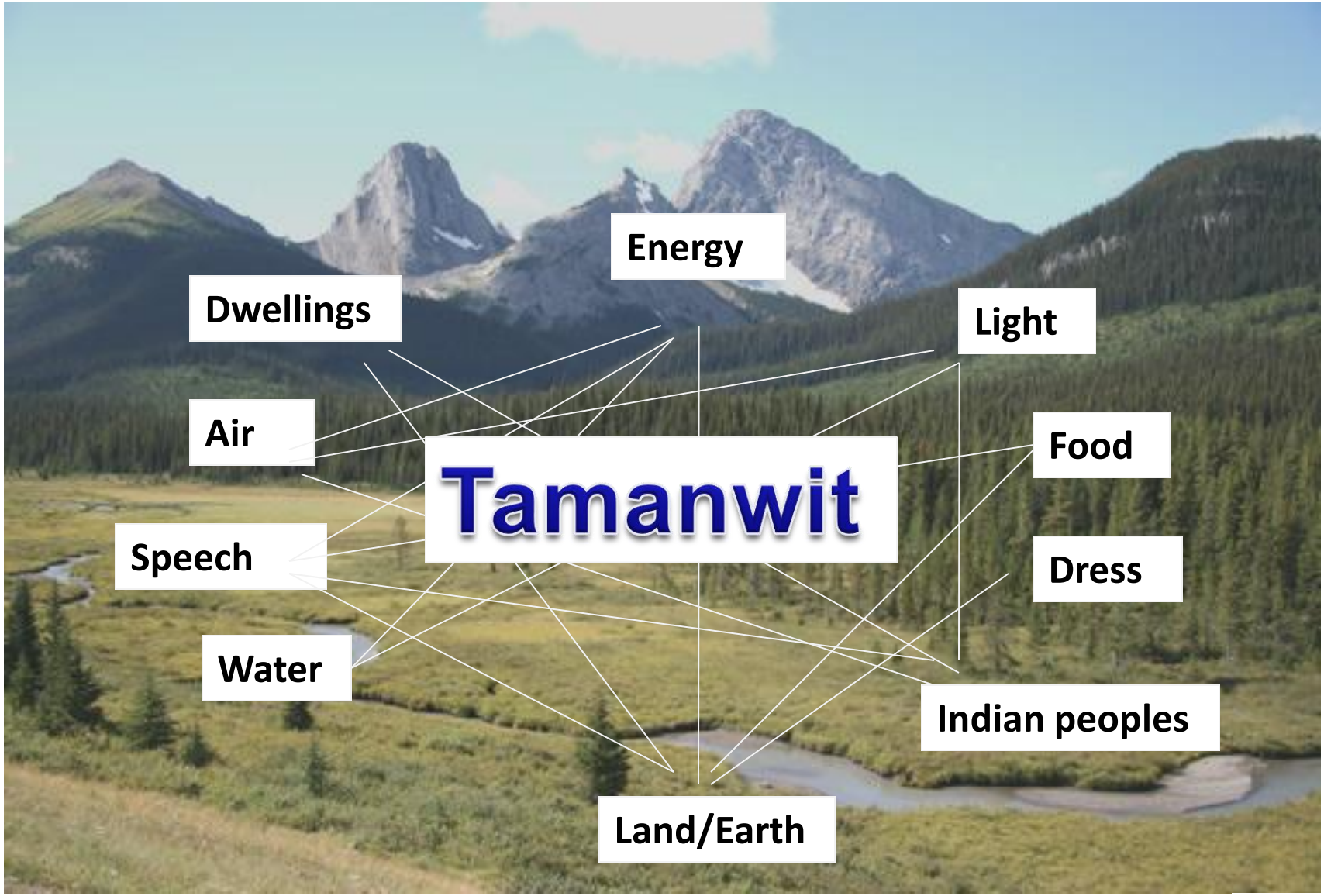

- **A subsistence economy with careers (hunting, mediation, resource management**
- **A relation with the environment based on observation, testing, formulating strategies for flexibility and survival.**
- **A language that embeds relationships and meaning.**
- **A simultaneous practical and spiritual worldview.**
- **A set of customary rules to regulate community operations and resolve disputes.**

Tamánwit and First Foods (a CTUIR-wide Initiative)

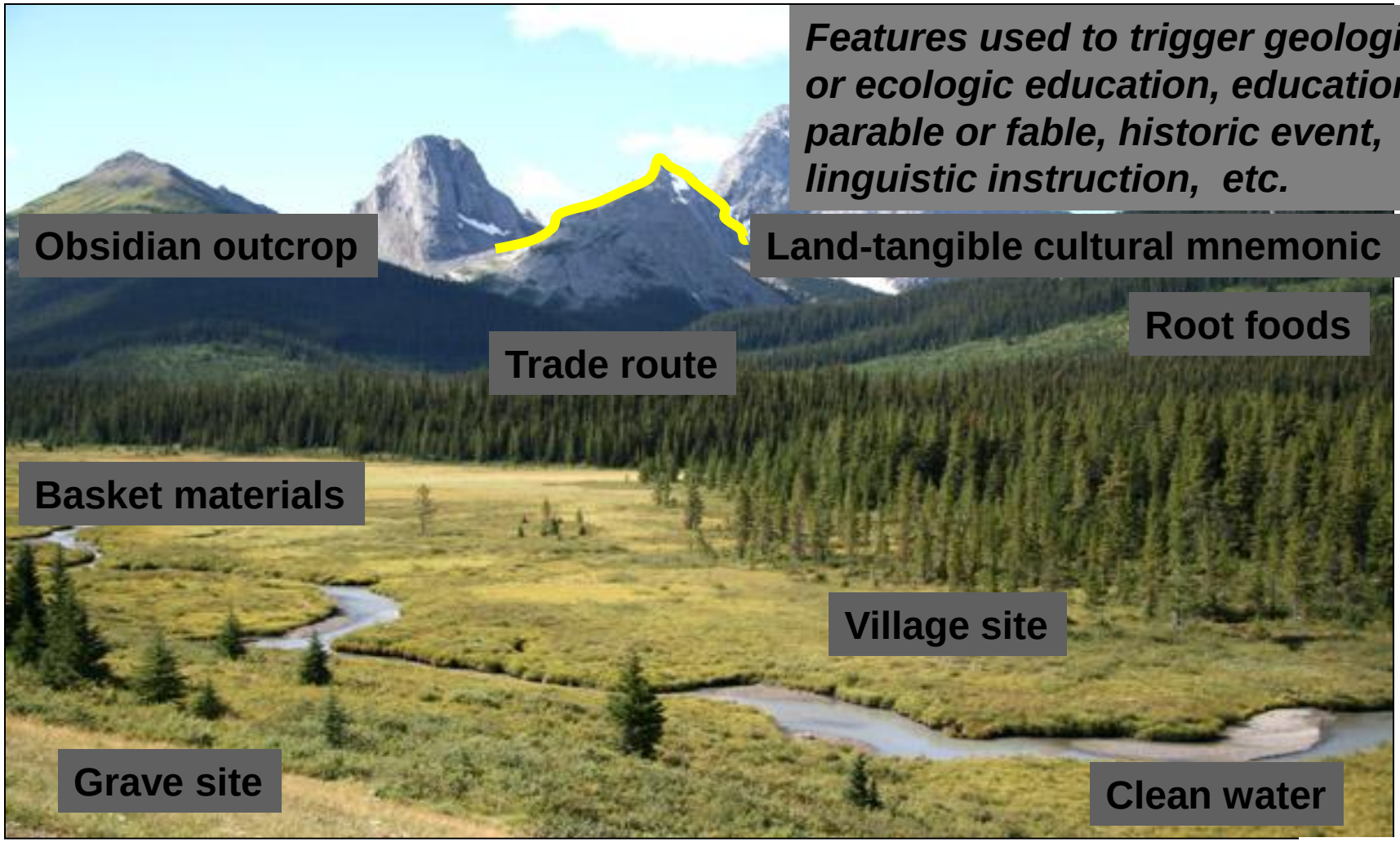
- Ties food and serving order to the landscape
- Reflects explicit Treaty-identified resources
- Research into ecological process and restoration



How to look at the landscape/viewshed



Eco-cultural attributes of the ethnohabitat.



First Foods

By the time of the vernal equinox many important roots and salmon are ready for harvest. Each April a thanksgiving feast, is held to celebrate the return, or the beginning, of the salmon and roots. April is known as the moon of the *gegi`t* roots (*Lomatium canbyi*). Soon the roots of the cous (Lomatium cous) along the Blue Mountains are ready to be harvested.

Serving Order

WATER (Choosh)

AQUATICS
- **Salmon – chinook, coho, sockeye, steelhead**
- **Lamprey**

LAND MAMMALS
- **Mule deer, Elk, Whitetail deer,**

ROOTS & Greens
- **Cous, Camas, Celery, Carrot, Bitterroot (also moss, other greens)**

BERRIES
- **Huckleberry, Chokecherry**

WATER

Plateau Seasonal Round

http://www.trailtribes.org/umatilla/camp-life-and-seasonal-round.htm

Re-naturalizating our way of life.

Local and seasonal resources and activities.

13 Months

People had to know every kind of tree that was up in the mountains. They had to know all the names of the different kind of plants and what they were for. We had conservation and botanical and environmental science.

Paraphrased from the CTUIR mission statement

- **Continuity and well-being of my people and our land,**
- **Treaty rights, sovereignty, and the ability of my tribal members to safely exercise their treaty rights,**
- **Restoration of environmental conditions for cultural wellness and subsistence rights based on traditional environmental knowledge,**
- **Individual and community health over time,**
- **Equity within this generation and between generations,**
- **Trusteeship of cultural and natural resources and landscapes,**
- **Sustainability of cultures within ecosystems.**

Department of Science & Engineering
Integrating modern and traditional science with Tribal values and policy

Identify Cultural Keystone Species

Incorporate Traditional Environmental Knowledge

Use geospatial and other technical data for vegetation mapping and sustainability

Continue video and oral archiving; oral tradition

Staff with Physics, Chemistry, Toxicology, Risk Assessment, Botany, Engineering, Geophysics, Restoration

Collect data, research, write technical reports (for the benefit of the people, not the CVs of the staff).

Ecological Data and Tamánwit

- **Sensor networks to detect climate-related changes in plants, insects, trees, ecosystems are needed.**
- **Contaminant sampling and analysis**
- **Ecologically and culturally important species.**
- **Blended traditional science and western science**

Tribal people In the field

and in the lab

Staff and academic scientists

Sustainable Infrastructure and Tamánwit

- **Maintain the physical infrastructure while protecting ecological and cultural infrastructures**
- **Infrastructure must be physically and philosophically compatible with sustainable development**
- **Level the playing field for all types of infrastructure**
- **Increase the value of prevention and stewardship**

Spend $10,000 to ask an engineer

Ask an elder

From **S.G. Harris. "A Native American Perspective on Sustainable Infrastructure." Invited paper and presentation, New York University, Institute for Civil Infrastructure, April 22-23, 1999.**

Field Station

- **Purpose: Research and Education**
- **Research – native plants, geophysics, lifeways and risk assessment, environmental quality, environmental health, biofuels**
- **Training and workforce development**
- **Visiting faculty projects**
- **Monolithic concrete dome**
- **Laboratory and greenhouses**

Risk Results *("average" fish; no radionulcides; no lead)*

Amount Eaten	Cancer Risk	Noncancer Risk (HI)
17.8 gpd	8.3E-5	0.8
63.2 gpd (1 pound per week)	3.0E-4	2.8
83.6 gpd	3.9E-4	3.6
170 gpd	8.0E-4	7.4
389 gpd	1.8E-3	16.9
434 gpd (1 pound per day)	2.0E-3	18.9
540 gpd	2.5E-3	23.5
650 gpd	3.0E-3	28.3
1000 gpd	4.7E-3	43.6

Existing Departmental projects:

- Tribal risk assessment for Superfund
- Hanford, Umatilla Depot cleanup and restoration
- Air quality, wind mapping
- Several projects with OSU, EOU

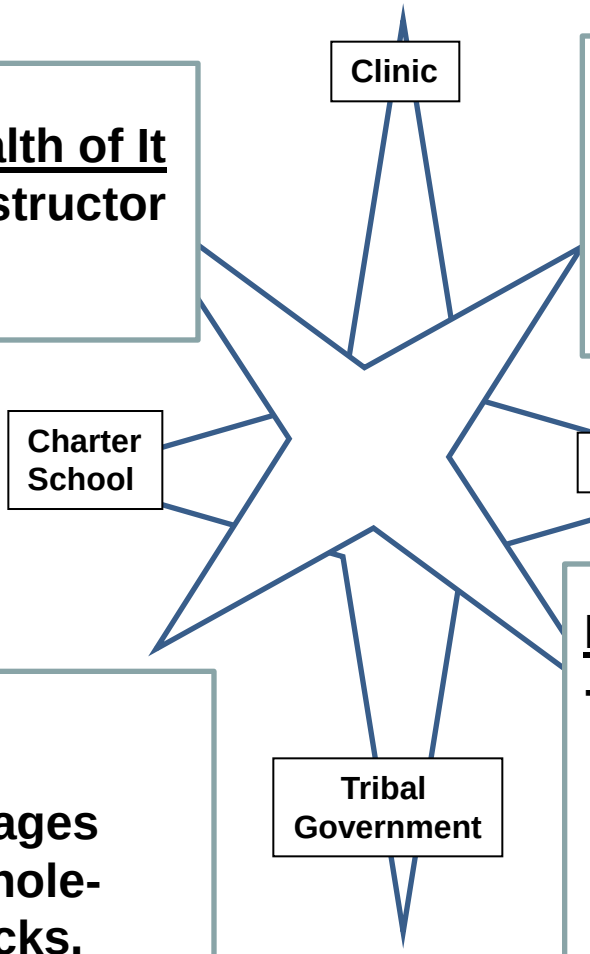
DOSE growth areas:

- Native plant research and propagation
- Energy Planning and Biofuels

CTUIR – OSU SBRP Project

The Outreach Core is part of the larger OSU Superfund Research Program, "PAHs: New Technologies and Emerging Health Risks," which will study the health risks and impacts of polycyclic aromatic hydrocarbons. The title of the Outreach Core project is, "Tribal-University Collaboration to Address Tribal Exposures to PAHs and Improve Community Health."

Sample structure of a community health project



D **Dance for the Health of It**
CCultural dance instructor for multiple ages

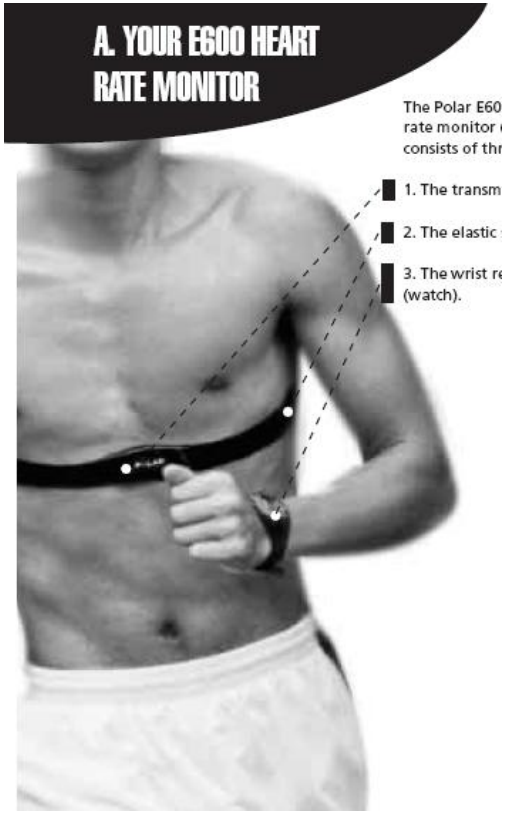
NNative Heart Beat
- Heart rate monitors will be used during Dance for the Health of It.

NNutrition Break
NNutritionist packages and sells fruit, whole-grain, similar snacks.

HHealthy Foods and Life Skills
- A small volunteer garden has operated for 3 years; will expand. - Shopping Healthy, Cooking with Whole Foods, and other seminars

Physiology Research for Traditional Lifeways Scenario

- **The Polar E600 HR monitor consists of a chest band and a wrist-worn recorder unit. The chest band is worn directly on the skin and underneath clothing, and houses the sensor that detects each heart beat and transmits the signal of the event to the wrist unit. The wrist unit is the size of a sport watch; it displays the real-time heart rate and stores this data for later downloading to a computer. Prior to beginning the traditional subsistence lifestyle activity, each subject will put on the chest band and the wrist unit, and activate the memory function so that HR is recorded during the time of engagement in the traditional subsistence lifestyle activity.**



Sample structure for community health research

Yellowhawk Tribal Health Clinic (YTHC)

Dr. Kelly Taylor, Chief Operating Officer

Community Health Coalition

YTHC Community Health Program
YTHC Community prevention and wellness program
YTHC Clinical Services
YTHC Chronic Disease Prevention
CTUIR Education Department and Recreation Director
CTUIR Wellness Coordinator
CTUIR Env Health Mgr, Dept Sci & Engineering
CTUIR Community members with Aerobics, Admin, and Charter School representative activities

CTUIR Health Commission

Advisory to the CTUIR Board of Trustees

Climate Change is a slow-motion emergency

Some acute emergencies will be more frequent or more severe; others stressors will be slower to develop.

- **Climate planning should combine monitoring, risk management and emergency preparedness tools.**
- **There are also investment opportunities - alternative-energy, infrastructure, waste management, and energy efficiency.**


RECAP