Traditional Knowledge of Fire Use by the Warm Springs Tribes in the Eastside Cascades: Opportunities and considerations in collaborations involving Traditional Knowledges

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- With Susan Charnley, Rebecca McLain, Mark Adams, and Kendra Wendel
- With Frank Lake, Chas Jones, and Linda Kruger

Appreciation to the Confederated Tribes of Warm Springs

University of Washington Botanical Symposium

2 March 2022

Introduction

- Traditional Knowledge Systems
- Applications
  - Restoration of frequent fire forests
  - Restoration of tribal first foods
- Guidance – collaborations involving agencies and Tribes
  - Partnership process
  - Considerations for Culturally appropriate practices

Example Resources – Research & management partnerships with Indigenous Communities

- CARE Principles for Indigenous Data Governance (Research Data Alliance International Indigenous Data Sovereignty Interest Group (September 2019)
- Kūlana Noiʻi v.2. (Kūlana Noiʻi Working Group 2021)
- Research Policy Update – Frequently Asked Questions (FAQs): Partnering with Tribal Nations on Research (NCAI Policy Research Center 2021)
- Tribal Adaptation Menu Team. 2019. Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin. 54 p

*A short selection of many excellent resources

Reconstructing Fire Regimes and Vegetation Conditions on Tribal Lands …using Ecological and Anthropological Data Resources

(Hagmann, Hessburg, Charnley, Steen-Adams, et al.)

US Forest Service

Confederated Tribes of Warm Springs

Expand Knowledge to Increase Forest Resilience - Initial goal

Expand knowledge to Restore Tribal First Foods -Emergent goal

Emergent project goal: promote restoration of Tribal First Foods

- Foods that play a central role in the diet and culture of Indigenous Peoples
- "American Indians and Alaska Natives since time immemorial have relied on our traditional foods to sustain us; they are a part of our history, culture and traditions; they are the basis for our way of life throughout the United States; and we are obligated to care for and protect them now and for the next seven generations and beyond;" (NCAI Resolution #ATL-14-022 (2014))

Credit: Wisconsin Historical Society, in Steen-Adams et al., 2015

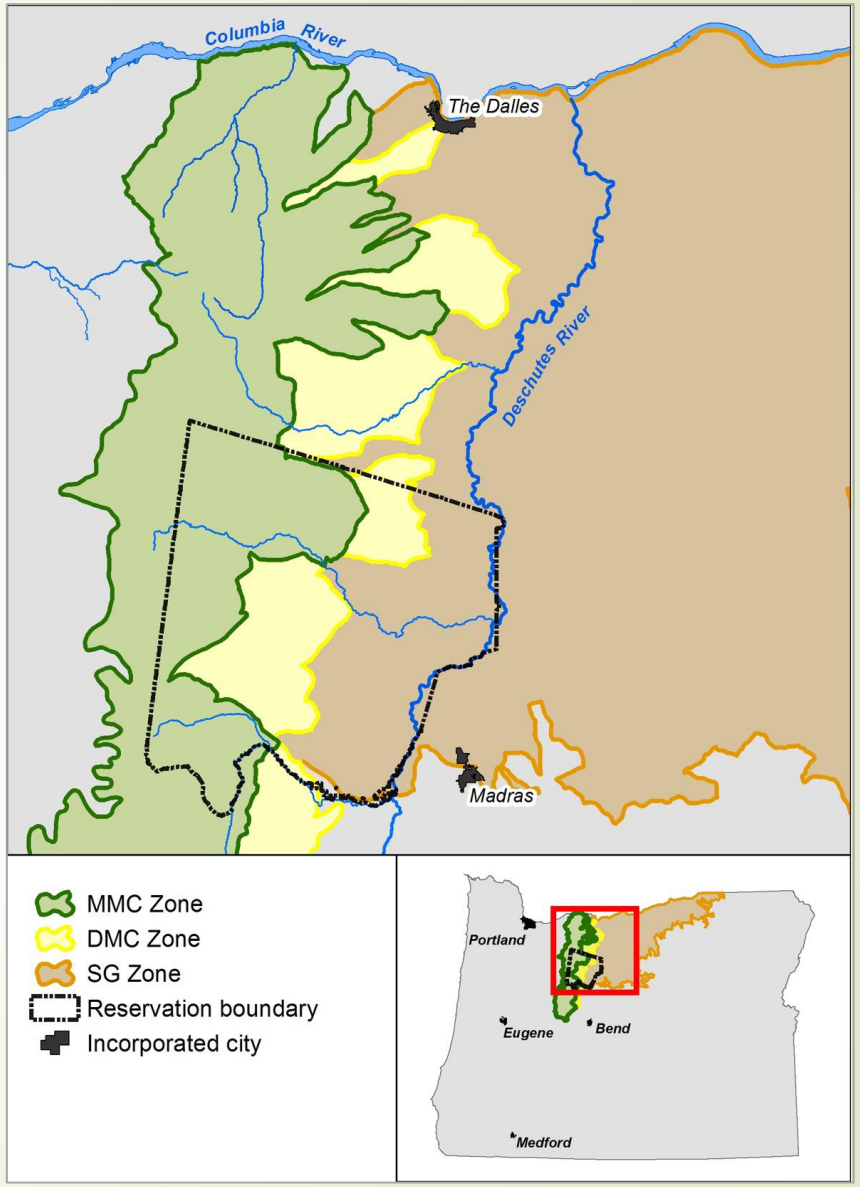
Greater Warm Springs Reservation Area

Seasonal round area, Warm Springs Tribes:

- Warm Springs Reservation (650,000 acres)
- Adjacent area - Mt. Hood National Forest

Ecological sub-regions

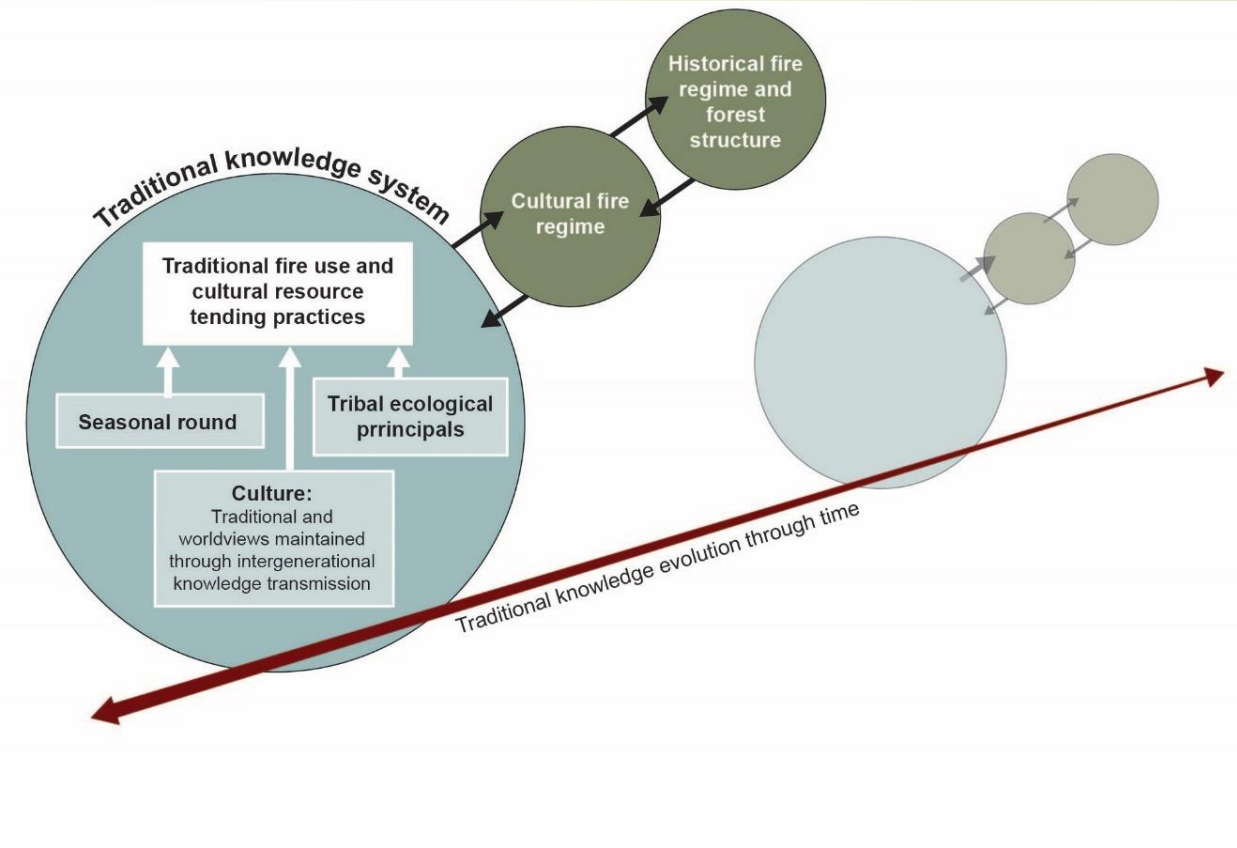
- Moist Mixed Conifer (MMC)
- Dry Mixed Conifer (DMC)
- Shrub-Grassland (SG)



Map Credit: M. Adams

Cultural Fire Regime

- Cultural Fire Regime (CFR):
  - Human component of the historical fire regime
  - A Tribe's pattern of managing fuels and ignitions of a particular plant community …to promote desired natural resources and ecological conditions (Steen-Adams et al., 2019; Lake and Christiansen, 2019)
- CFR characteristics (Lake, 2021):
  - Seasonality
  - Frequency
  - Severity
  - Geographical extent



Steen-Adams, Lake, Jones, and Kruger, in review.

Methods

Qualitative Data

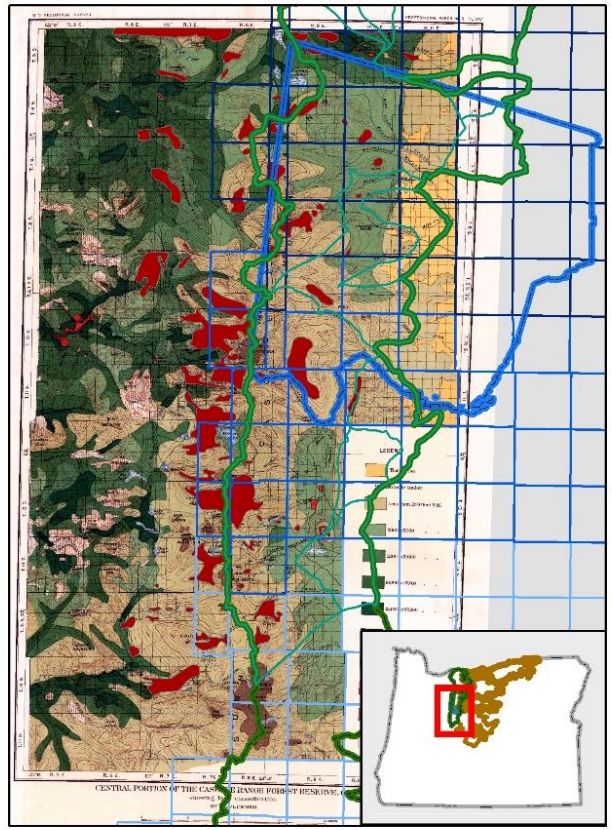
Spatial Data

Ethnohistorical records

Eva Winishut with David French at Warm Springs, 1952; Winishut, a Sahaptin, assisted with the Frenches' anthropological research.

Participatory data:
-Oral History Interviews
-Participatory GIS

Historical ecological records



R. McLain

Qualitative Data

Spatial Data

Ethnohistorical records

- D. & K. French Collection, 1951 – 1955 (University of Washington, Reed College)
  - Slide imagery of cultural food harvest sites
  - Ethnographic notes
- Eugene Hunn papers

Participatory data: -Oral History Interviews -PGIS

- Oral history interview data (n = 14)
- Participatory GIS (McLain et al. 2017)
  - 3 groups
  - 30 participants
  - Story-telling approach
    - ethnographic resource aids

Historical ecological records

- Cascade Range Forest Reserve, 1901
- Trails and villages, BIA Survey, 1922-1926

Participatory GIS methods

PUBLIC MEETING

Traditional Tending of Cultural Resources:
Event for CTWS Community & Traditional Food Gatherers welcome.

RE: sharing oral history of Traditional Food Gatherers and viewing historical pictures

Date: Mon., November 27, 2017

Time: 12:00PM - 4:30PM

Location: Social Hall-Community Center

Multorpor Mt., 9/10/52

Wolf Camp, 8/9/53

Root digging, 5/10/53

Sponsored by:

Culture & Heritage Committee 541.553.3257

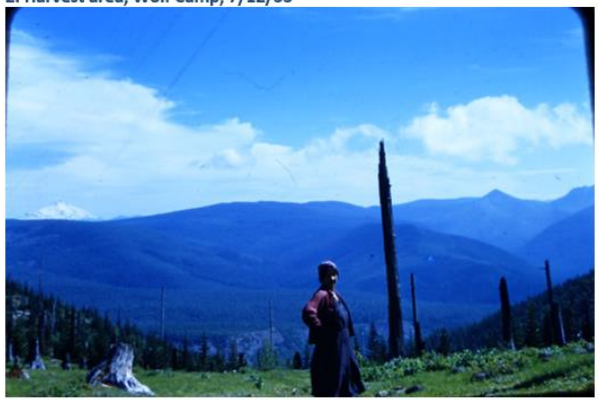
Pacific Northwest Research Station, US Forest Service

Image Set #1:
Wolf Camp harvest area,
Moist Mixed Conifer zone

Image Set 2: Wolf Camp
Traditional tending of Berry Resources in Forest Zone

1. Harvest area, Wolf Camp, 7/12/53

2. Harvest area, Wolf Camp, 7/12/53



Results and Applications

First foods of the seasonal round: *potential* indicators of cultural fire regimes

	Moist Mixed Conifer	Dry Mixed Conifer	Shrub-Grassland
Cultural resources	-Thinleaf huckleberry -Mountain ash berries	-Choke-cherry -Wild carrot (and others)	-Biscuitroot -Bitterroot (and others)

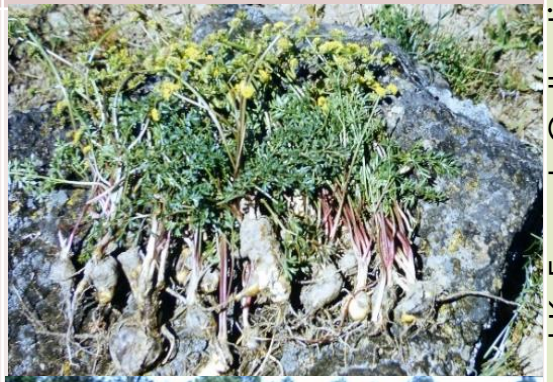


Image credit: D. and K. French Collection, University of Washington Library

Cultural fire regimes – eastside Cascades

	Moist Mixed Conifer	Dry Mixed Conifer	Shrub-Grassland
Key resources	-Thinleaf huckleberry -Mountain ash berries (and others)	-Choke-cherry -Wild carrot (and others	-Biscuitroot -Bitterroot (and others)
Traditional fire use	Severity: Low-severity Frequency: ~decadal	Fire use not reported	Fire use not reported; natural fire perceived as beneficial

Traditional fire use - thinleaf huckleberry

CFR Factor	Finding
Ecological zone	Moist Mixed Conifer zone
Severity	Low-severity
Frequency	-decadal or more frequent
Extent	- 24 resource sites ~500,000-acre area
Pattern	-Rotation across harvest area
Burn patch area	~2 - 10 acres (estimated)
Fire control techniques	-Coincide with rain events -Clear flammable material -Fire guards encircled burn perimeter

Image credit: D. and K. French Collection, University of Washington Library

Seasonal round context-
why & how tend huckleberries?

factor	finding
Encampment group size	Multi-family groups
Cultural role	- Food resource - Rite of passage - Ceremonial feast - Ceremonial gifting - Trade good
Timing	Late summer/ Early fall

Traditional huckleberry picking areas, *"Wasqupam satas"* 8/22/54

Cultural traditions: Annual huckleberry feast ceremony

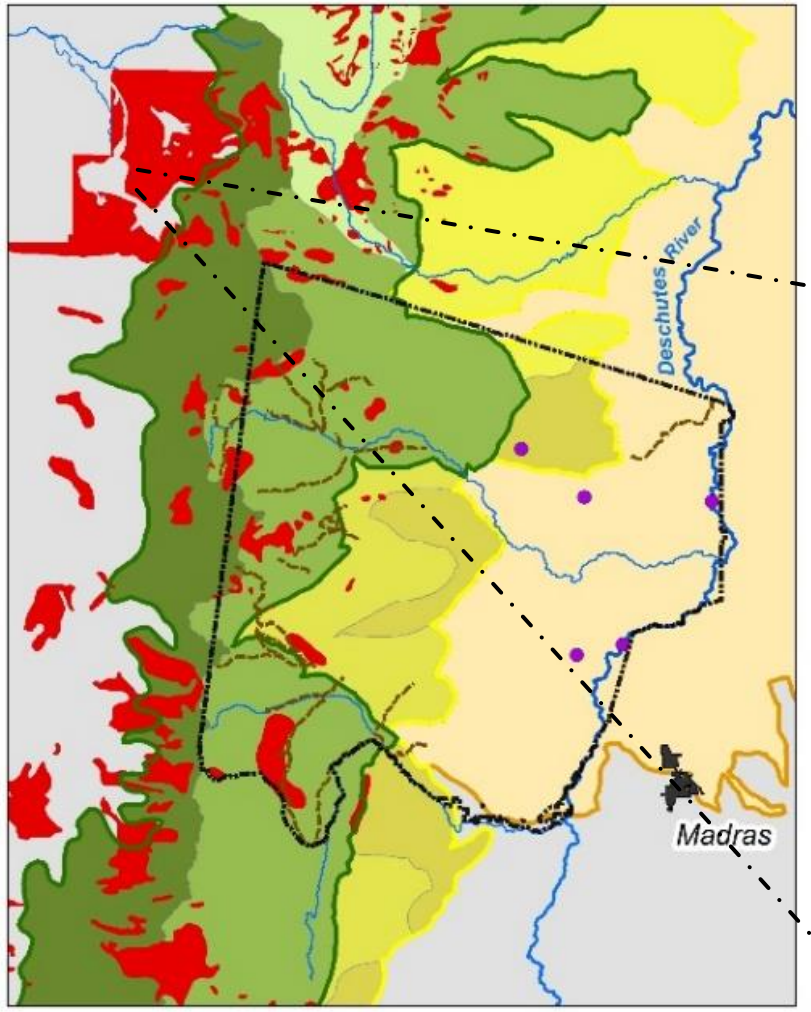





D. French, 1951-1954, University of Washington Libraries

Historical burn land-cover, 1901

	MMC	DMC	SG
% LS in burn LC	12.6%	2.2%	n.d.
Patch (ha)	406.7	107.0	n.d.



Map credit: Mark Adams

Wolf Camp harvest area, 7/12/53
Image credit: D. and K. French Collection, University of Washington Library

Opportunities and guidance in collaborations involving Traditional Knowledge

- Restoration Applications
- Key considerations
  - knowledge sovereignty and context
- Partnership lifecycle

Huckleberry Restoration, Warm Springs Reservation
Pre- and post-treatment conditions (2019)

Restoration history

1999- 2006

- **~650 acres treated**
- **9 blocks**

2019 – present

- **~400 acres treated**
- **7 blocks**

Pre-treatment

Post-treatment

Image Credits: Matt Jimenez

Treatment

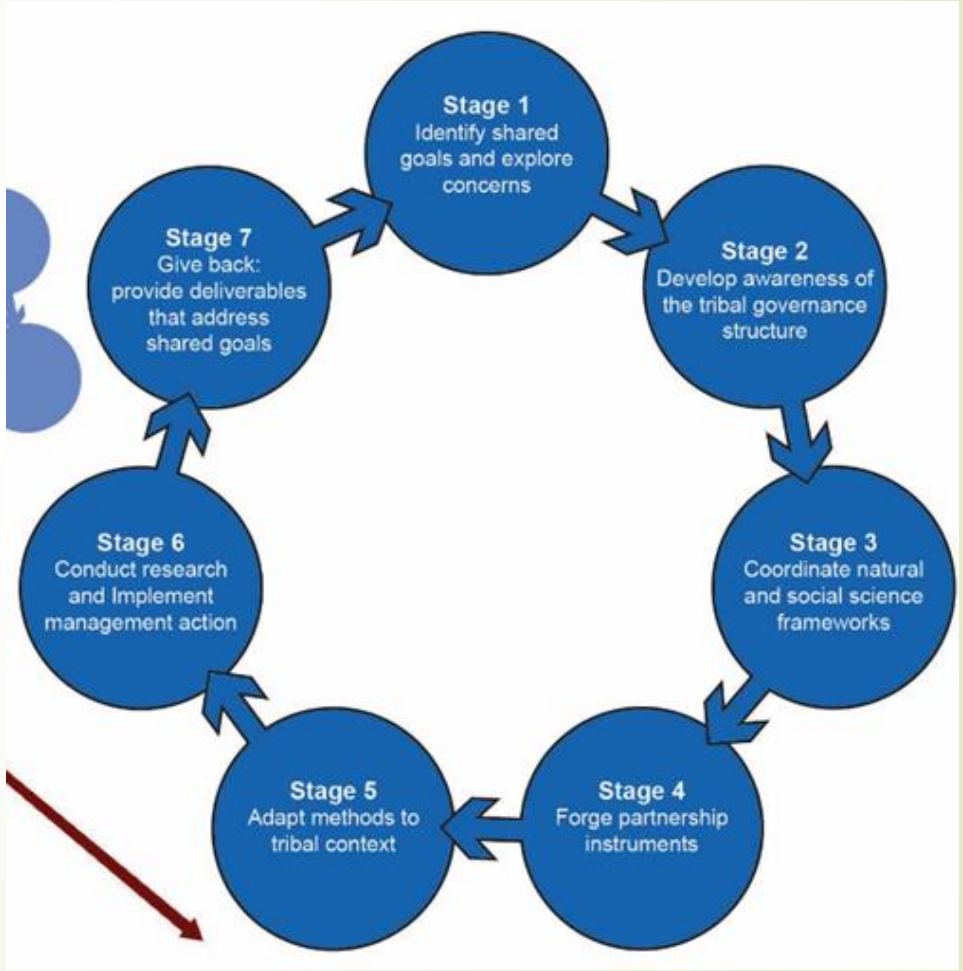
Key considerations: Traditional Knowledge-based research

- Traditional Knowledge is sacred knowledge
  - Closely held by families and communities
  - Often not appropriate to share
- Knowledge sovereignty (Norgaard, 2014, 2019)
  - Recognition of the autonomy of entities to determine whether (or not) to apply their knowledge to research and management
- Traditional Knowledge is transmitted through practice and lived experience
  - Not readily distilled into interview data
  - Relationships integral

Partnership lifecycle

Partnership stages

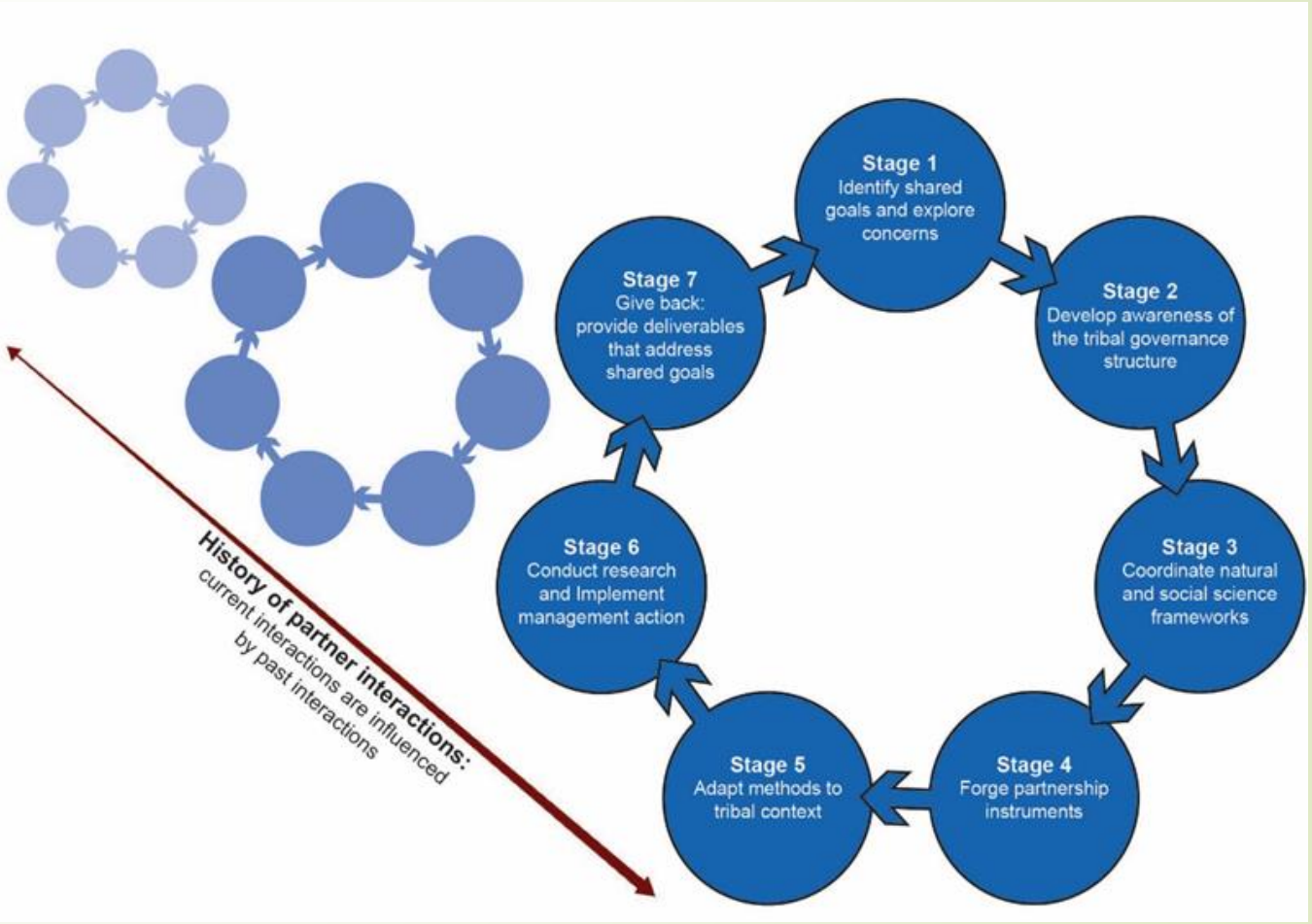
- (1) identify shared goals and explore concerns,
- (2) develop awareness of the tribal governance structure,
- (3) coordinate natural and social science frameworks,
- (4) forge partnership instruments,
- (5) adapt methods to the tribal context,
- (6) conduct research and implement management action,
- (7) give back.



Steen-Adams, Lake, Jones, and Kruger, in review.

Partnership lifecycle

- Nonlinear process:
  - partners may loop back to preceding stages,
  - leapfrog particular stages,
  - advance through multiple stages simultaneously.
- legacy effects:
  - current partnerships are influenced by the community memory of past experiences.



Steen-Adams, Lake, Jones, and Kruger, in review.

Conclusions

Traditional fire use

- Cultural fire regime
  - Basis in the seasonal round
  - Spatial pattern: spatially-specific practices, yet large spatial extent (100,000's acres)
  - Temporal pattern: decadal
- Methodology
  - geographical tools, oral histories, and archival materials
  - insight into "How?" And "Why?" type questions

Considerations in collaborations involving Traditional Knowledge

- Partnerships as a process
  - Multiple stages
  - Evolving objectives
  - Legacy effects
- Recognition of knowledge sovereignty and importance of context

Acknowledgements

- CTWS Branch of Natural Resources
- Culture and Heritage Committee
- CTWS tribal elders
- Special Collections, University of Washington and Reed College Libraries

Funding

USDA Forest Service, Pacific Northwest Research Station

USDA Forest Service, Pacific Southwest Research Station

- Civil Rights Action Group (CRAG) Research with Underserved Communities program
- National Fire Plan

Sources- selected

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Thank you!

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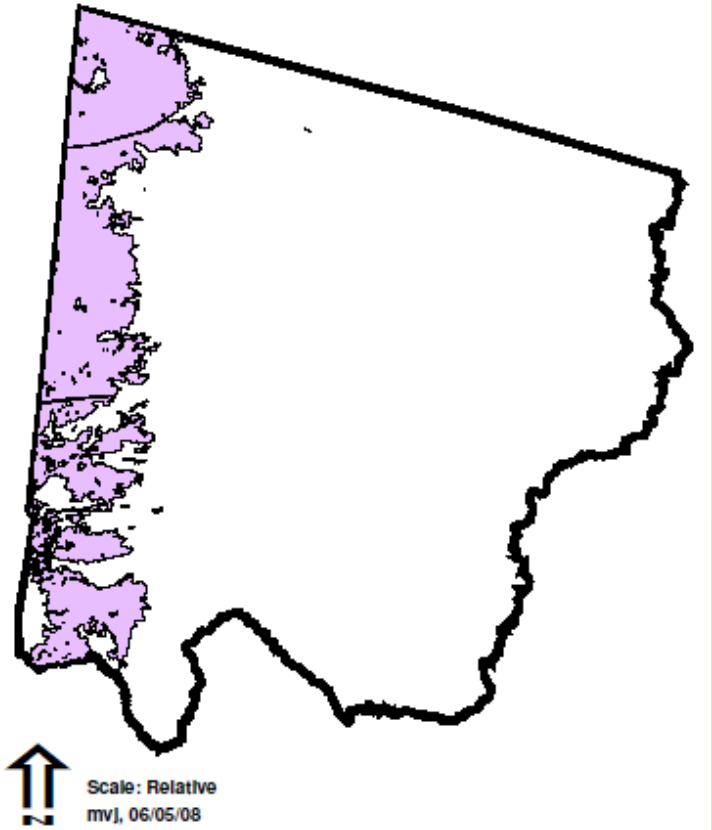
Q & A Slides

Thinleaf huckleberry (*Vaccinium membranaceum*) - ecological characteristics

- Native perennial, frost-tolerant shrub
- Occurrence: Moist, cool mesic forests and openings
  - Elevation (in Cascades): above 3,800' / 4,000'
- Plant associations:
  - Western Hemlock/Beargrass
  - Silver Fir
  - Mountain hemlock – lodgepole pine
- Site condition requirements
  - Moist, moderately deep, well-drained soils
  - Canopy openings/ sunlight for berry productivity
    - Shady conditions – limiting factor
- Disturbance agent: fire / Indian burning (Minore et al., 1979; Hunn, 1990; Mack, 2003)

Huckleberry habitat range, Warm Springs Reservation



Jimenez, 2008

Thinleaf huckleberry *(Vaccinium membranaceum)* First Food of Warm Springs Tribes

V. membranaceum, D. French, 1952

D. French, 1952

Cultural & historical significance

- Annual harvest activity
- Huckleberry feast
- Trade good

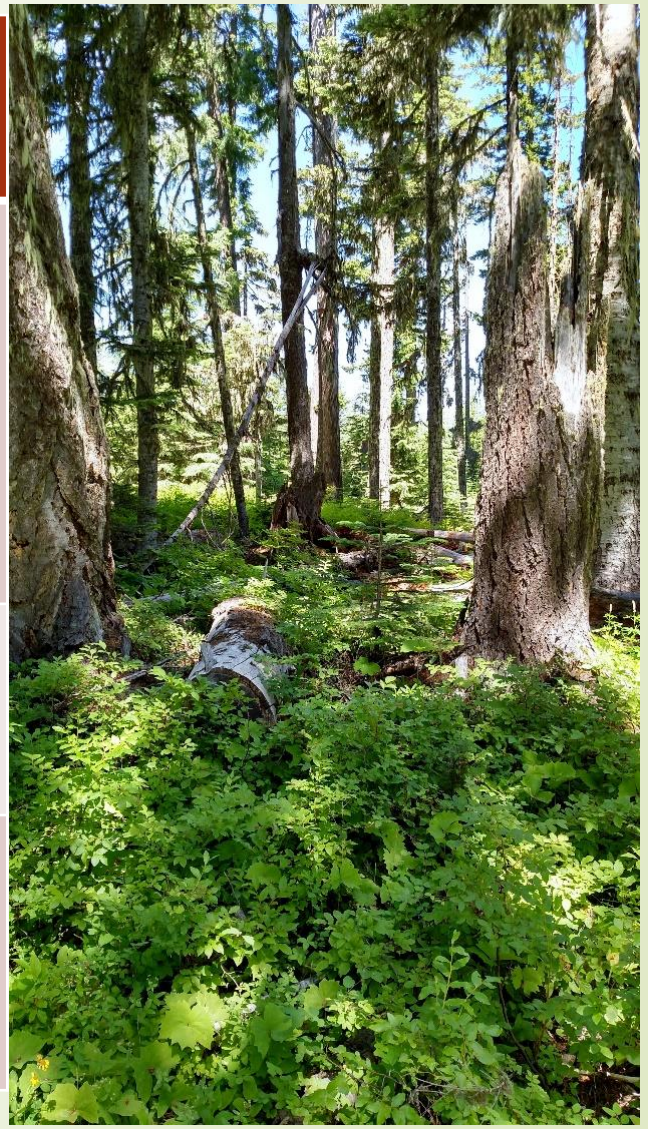
Management Concerns

- Declining berry productivity (USDA FS, 2010; LeCompte, 2018)
- Reduced access to harvest sites

J. Rice, 2010

Restoration Applications
Multiple objectives: timber and huckleberry

Objective	Target condition	Practice	Knowledge System
Forest resource - timber - Economic benefit	Open canopy	- Intermediate thin - Shelterwood - 15 – 25 trees per acre	Western Knowledge
Cultural resource – huckleberry fields	Shrubs undamaged from logging	Log over snowpack	Western Knowledge
	-Remove debris -Stimulate sprouting	Goal: Prescribed burn, after commercial timber harvest	Traditional Knowledge & Western Knowledge



Credit: Matt Jimenez

Partnership Process: (Stage 7) Give back relevant deliverables

- Youth engagement
  - Intergenerational oral history interviews
- Training Opportunities – Natural Resources interns
  - PGIS training workshops
- Community-appropriate products