Returning Fire to the Land-Celebrating Traditional Knowledge and Fire: Approaches for Management and Research

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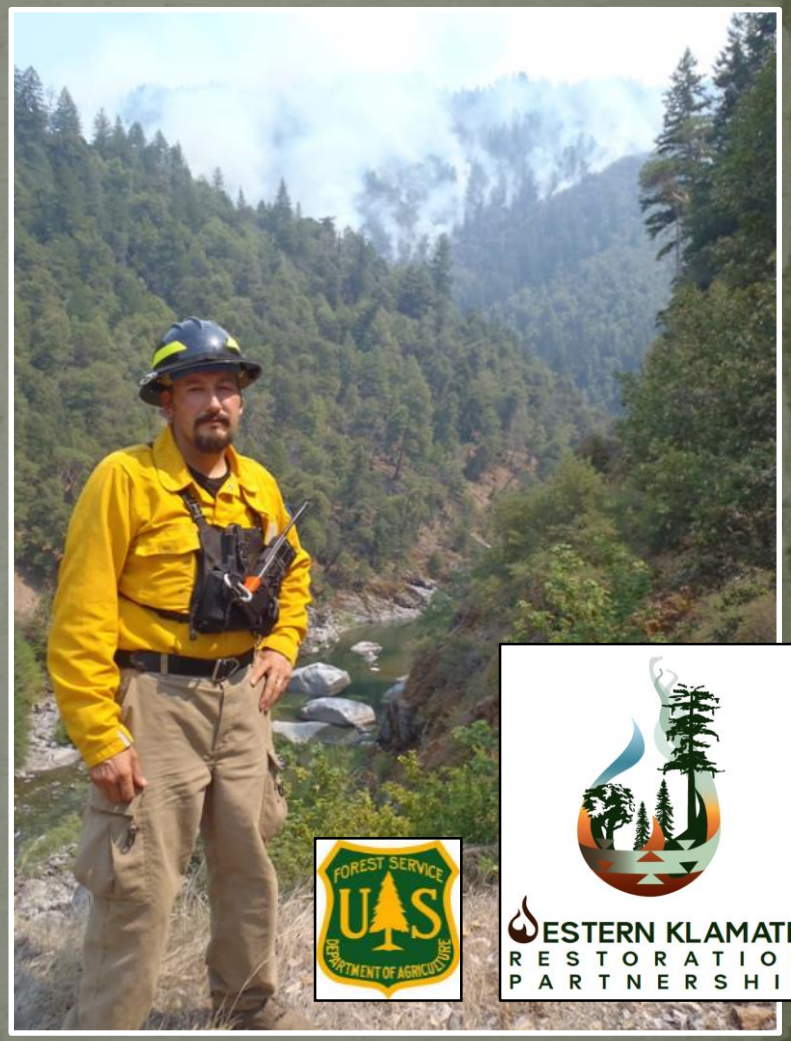
  - Fire and Fuels Program
- Research
  - Traditional Ecological Knowledge and Ethnobiology
  - Fire Effects and Climate Change Impacts to Tribally Valued Habitats and Resources
- Management
  - Resource Advisor on Wildfires
  - Interdisciplinary team assignments
  - Advisor to Indigenous Peoples Burning Network-TNC



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Main Presentation Topics and Objectives:

- Provide examples of lessons learned from two workshops on the topic, literature and findings from across the nation for integrating Traditional Knowledge into Fuels and Wildland Fire management and research projects
  - What is TEK or Traditional Fire Knowledge?
  - What are the main topics identified in working with tribes?
  - What are the applications of TFK today?
- Describe models of cooperative wildland fire management with Tribes and Tribal communities
  - Regional examples that feature some but not all the work being done by tribes for fuels reduction activities, prescribed burning and managing wildfire.
  - Feature examples that link traditional burning in a modern context to achieve resource objectives.

Incorporation of Contemporary Tribal TEK into Wildland Fire Research and Management

- Collaboration and Partnerships in Landscape Projects
  - Regional
  - National
  - International

FIRE SCIENCE DIGEST
Research Supporting Sound Decisions

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Traditional Ecological Knowledge: A Model for Modern Fire Management?

For many thousands of years, aboriginal peoples worldwide used fire to manage landscapes. In North America, the frequency and extent of fire (both human caused and natural) were much reduced after European colonization. Fire exclusion became the policy in the United States for most of the 20th century as the country became more settled and industrialized. Past fire exclusion has helped produce landscapes that are highly susceptible to uncharacteristically severe wildfire. An urgent challenge for land managers today is to reduce fire risk through several means, including prescribed burning, without harm to culturally significant resources or human communities. The Joint Fire Science Program (JFSP) is supporting the development of methods and tools aimed at incorporating the traditional ecological knowledge of indigenous peoples into standard science-based fire management. JFSP-supported researchers are also developing tools that provide a framework for organizing and sharing tribal knowledge with nontribal scientists and managers. Because indigenous knowledge and Western science come from such different cultural traditions, blending them is not a straightforward process. Even so, current partnerships among tribal leaders, agency and tribal land managers, and other stakeholders promise to move some landscapes closer to a resilient condition.

"...TEK can produce many ecological outcomes on a given landscape, not just a few. 'It's the complexity of traditional fire knowledge,' says Lake, 'that guided what should be prescribed in different circumstances.'

Traditional Knowledge vs. TEK

- TK is differentiated from traditional ecological knowledge being inclusive of tribal beliefs, philosophies, and practices that integrate metaphysical and biophysical ways of knowing.
- TK is the cumulative collective understanding derived from individuals and communities about ecological processes, natural resources, and sociocultural adaptive responses to the environment
  - TEK def. see Berkes 1999:8 in Sacred Ecology.
  - See also Mason et al. 2012: *Listening and Learning from Traditional Knowledge and Western Science…*

Learning TK of desired fire effects with different cultural practices

Traditional Fire Knowledge

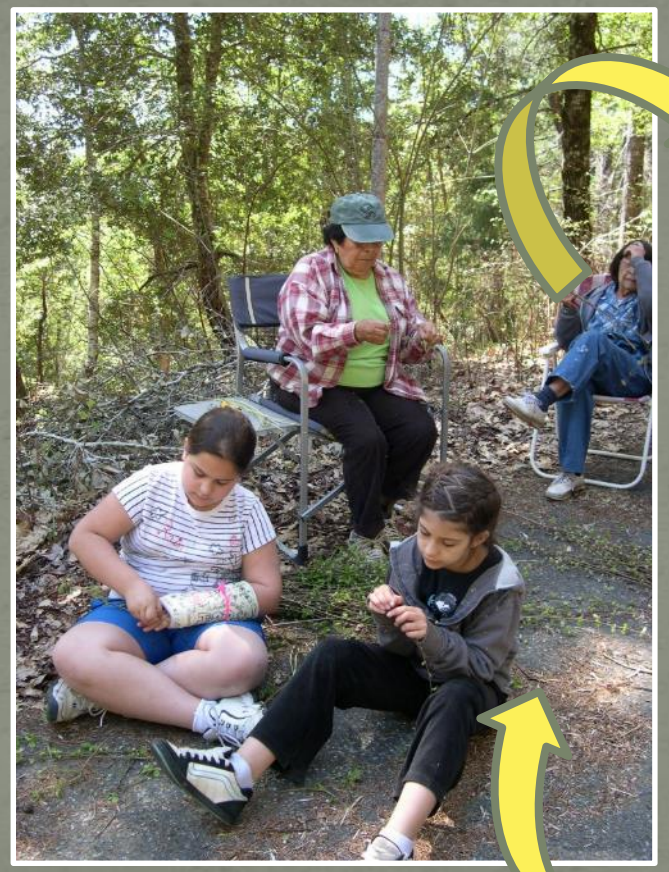
- *"...as fire-related knowledge, beliefs, and practices that have been developed and applied on specific landscapes for specific purposes by long time inhabitants."*
  - Over 69 distinct elements of TFK documented from a global synthesis. See Huffman 2013.

Challenges to learning TFK for fire use and direct experiences with cultural fire related practices of tribal communities

"Factors of Fire"-Traditional Fire Knowledge

Elements of TFK

- Geology, Topography, Soils
- Vegetation, Fuels
- Weather (Climate)
- Fire Behavior
- Fire Operations
- Fire Effects
- Fire Governance
- Other Social Factors



Source: **M. Huffman 2013**- Many elements of Traditional Fire Knowledge: *Ecology and Society* 18(4):3.

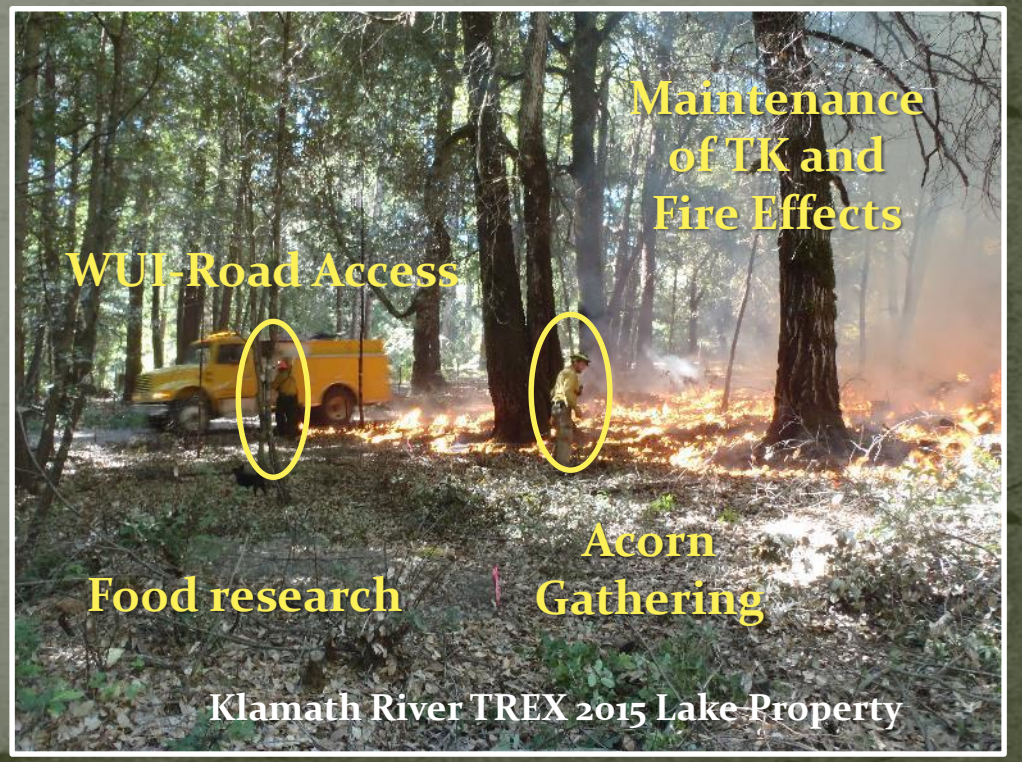
*Indigenous communities desire fire use sovereignty without persecution

From Tribal TK Fire Philosophies to Operational Projects

- TK and Fire Use is a spiritual obligation for tribal land and resource stewardship practices
- Fire is "*Medicine*" for people and land
  - Prescribed fire: Not enough fire-land and people sick, too much fire-can be bad as well.
  - Fire is connected to Water at all scales. **Water is sacred** and is one of the highest values to consider.

Karuk Brush Dance-*Katamin* 2002: Men's Camp

Traditional burning in a modern context to achieve multiple resource objectives!



Documented Reasons For American Indian Fire Use

- Hunting
- Crop Management
- Pest Management
- Range Management
- Fireproofing
- Wildlife Habitat
- Clearing Areas For Travel
- Clearing Riparian Areas
- Basket Materials
- Fuel Wood
- & Many others…

Williams 2000 (Modified from H. Lewis and Bonnicksen 2000)

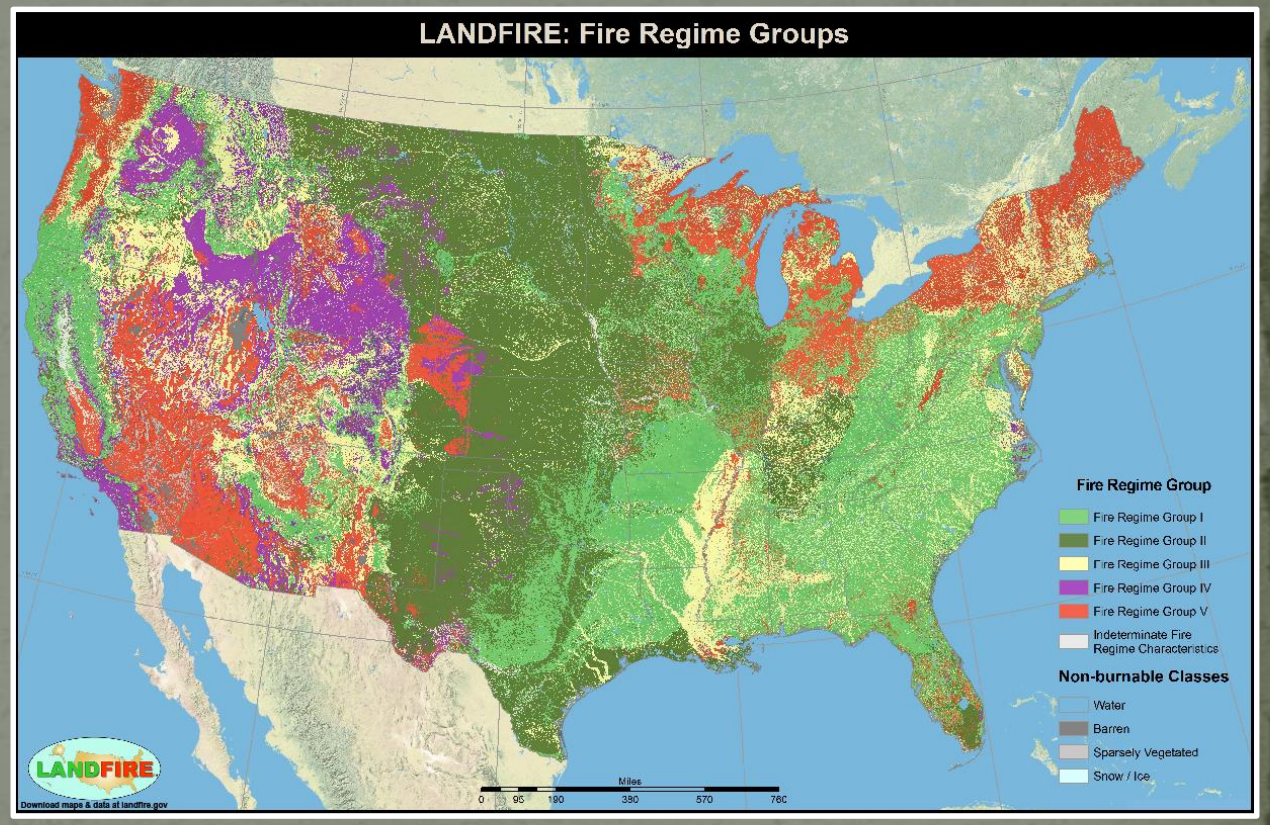
Historical Context: Natural vs. Cultural Fire regimes

- Tribal fire use objectives connect knowledge systems, cultural practices, wellness, economies, security and livelihoods.
- Many examples describe “natural” fire regimes and identify historical tribal burning practices, fewer acknowledge the significance of “cultural” fire regimes where Native American fire use was a landscape scale influence.

The Grass Fire, Frederic Remington 1908, Amon Carter Museum, Fort Worth, Texas.

Fire exclusion and suppression effects on tribal cultures (for historical fire use) and altered fire regimes

- Changes in climate and fire regimes affect tribal cultures
- Tribal oral histories and multiple scientific sources describe the effects of colonization and fire exclusion across North America on tribal cultures
  - Disease and genocide.
  - Displacement, removal, and relocation of tribes.
  - Disruption of tribal management systems and burning practices.
  - Colonial, Federal and State fire suppression and exclusion policies.
  - Increased landscape jurisdictional complexity and fire use liability.



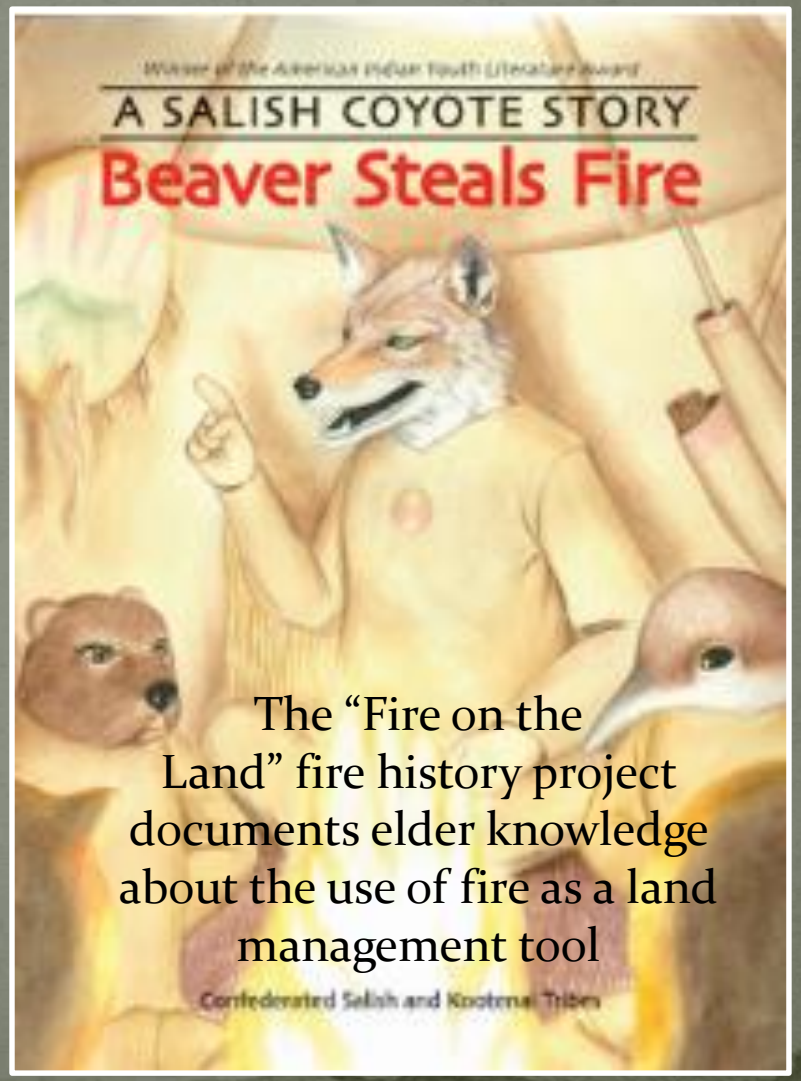
Source: LANDFIRE, 2017, Fire Regime Group Layer, LANDFIRE 1.1.0, U.S. Department of the Interior, Geological Survey. Accessed 14 June 2017 at http://landfire.cr.usgs.gov/viewer/.

What are reasons why researchers and land managers may want to work with tribal governments and communities to document historical landscape changes resulting from fire suppression and the removal of indigenous land use and occupancy?

Understanding the role fire has in maintaining healthy ecosystems and for tribal communities

- Re-learning Traditional Fire Knowledge and Cultural burning practices
- Evaluation of landscape to local level resource fire effects
- Learning of fire effects from reintroducing fire to culturally valued habitats and responses of resources (species or sites).
- Integrating fire associated resources back into family activities and cultural practices

*TNC Indigenous Peoples Burning Network



The "Fire on the Land" fire history project documents elder knowledge about the use of fire as a land management tool

What are the Tribally Valued Resources and Habitats? With A Cultural Ecosystem Services Framework

- **Resources:**
  - Tangible and Intangible elements of the environment
  - Landscapes (Areas), Sites, Objects, State of Mind
  - Past, Present and Future cultural knowledge systems and related practices
  - Natural and Cultural Resources utilized to perpetuate tribal customs, practices and knowledge systems.
- **Habitats:**
  - Landscapes or places that support tribal ceremonial and subsistence practices
  - Bio-physically or Socio-Culturally defined site characteristics
  - Places that support or potentially support a single or multiple resources of tribal value

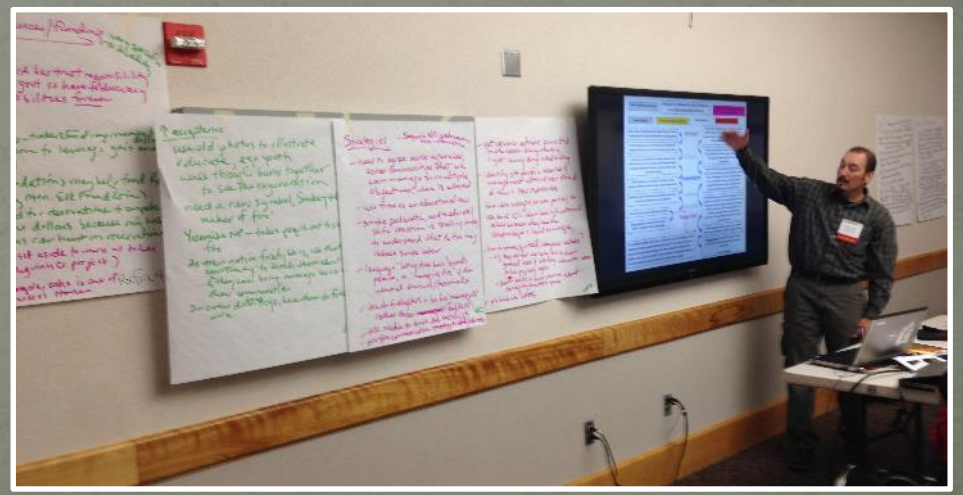
Methods: Understanding Challenges to the Use of TK with Fire Management and Research

- Convened two workshops:
  - Polson, Montana (2012) organized with the Confederated Salish and Kootenai Tribes' Forestry Department following the recommendations by Mason et al. (2012, p. 192), to "*bring keepers of TK together with representatives of management entities, practitioners, and academic and research institutions.*"
  - Field trip and breakout sessions discussed challenges to using TK regarding key topics:
    - Cross-jurisdictional management,
    - Fuels reduction strategies,
    - Wildfire management, and
    - Research

Polson workshop with tribal, agency and academic participants. Courtesy of Vita Wright, USDA Forest Service

Methods: Understanding Challenges to the Use of TK with Fire Management and Research

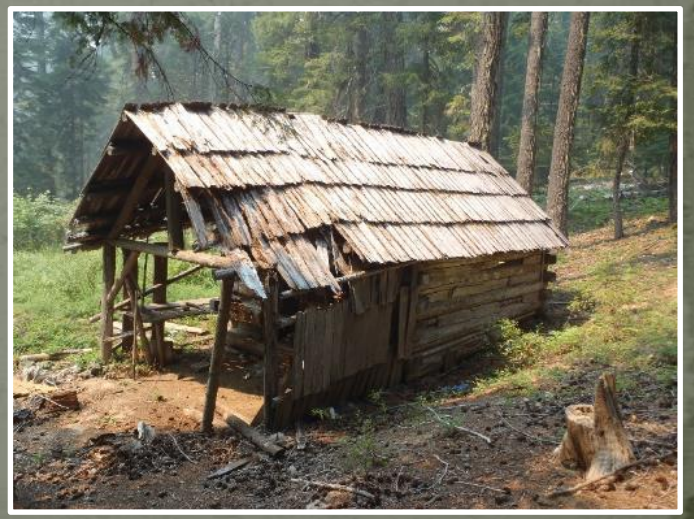
- Second Workshop:
  - Large Wildland Fires conference (Missoula, Mt. 2014) building on first workshop themes. The co-leaders organized discussion topics and questions around themes documented during the first workshop:
    - Communication, understanding, and trust
    - Fuels reduction and prescribed fire
    - Wildfire



Photos: Northern Rockies Fire Science Network. Frank Lake leading group discussion at second workshop

Findings and Discussion: Cross-Jurisdictional Work and Cultural Resources

- *Cross-jurisdictional work*
  - Fuels reduction and wildland fire planning and implementation across multiple land ownerships
  - Culturally sensitive that achieves cultural and ecological objectives
- Cultural resources are legally protected by treaties, laws, executive orders, and regulations.
  - Resources culturally important to tribes include living resources: Habitats, plants, animals, and fungi.
- Workshop participants recommend involving tribes in the development of collaborative management plans.
  - Participatory GIS
  - Wildland Fire Decision Support System (WFDSS) for identification of Culturally sensitive "Values at Risk"



Pacific Northwest: *Tribal Burning to Restore Foods & Basketry Resources in Prairie/Woodlands*

- Confederated Tribes of Grand Ronde with Federal-State Agencies, TNC-TREX, and Oregon Prescribed Fire Council projects
- Objectives:
  - Restore diverse habitats for multiple cultural use plant species
  - Reduce invasive species
  - Reduce hazardous fuels
  - Demonstration to public

Western Oregon Cooperative Burning with Tribes

Source: Oregon Prescribed Fire Council, Aug. 2016 & Amanda Stamper TNC-Oregon FMO

Southwest Tribes and Partners: *Working Together to Burn*

- Prescribed fire burns conducted by the Southern Ute Indian Tribe's Fire Services and Forestry Department, aided by the Bureau of Indian Affairs and tribal affiliates, including the Navajo Nation, Ute Mountain Ute Tribe, Jicarilla Apache Tribe, Mescalero Apache Tribe, Zuni Pueblo, Los Pinos Fire Department, and the BIA Southwest Regional Office.

Darrell Yazzie from the Ute Mountain Ute Agency controls the spread of flames [Source: Damon Toledo, The Southern Ute Drum]

Objective is to reduce hazardous fuels for fire suppression and to improve the wildlife habitat.

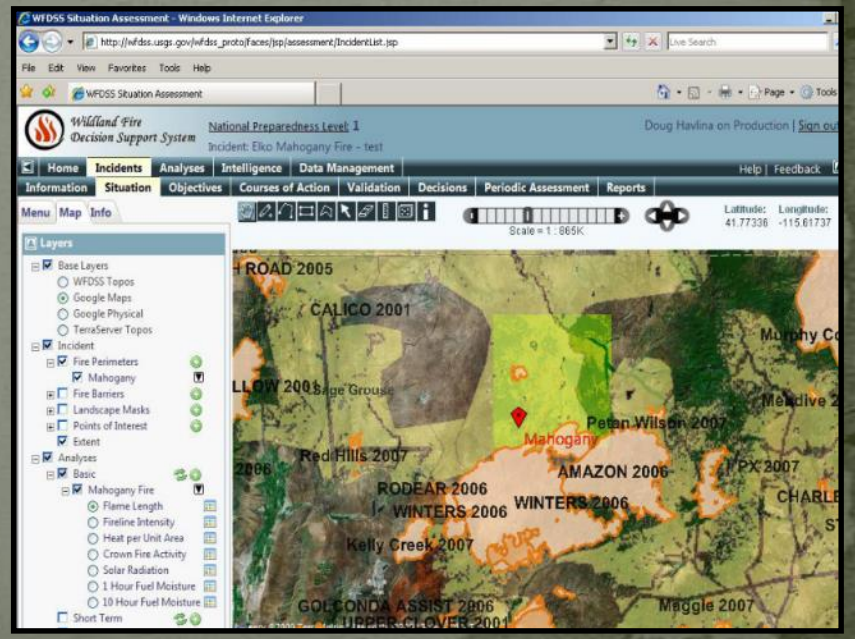
"*...it'll protect and support other resources such as water, air quality, and cultural areas. It will increase the quality of forage for wildlife in the long run*" Howard Richards Jr., Assistant Fire Management Officer.

Before and During the Wildfire: Protect and mitigate impacts to Cultural Resources and Tribal Values

- Tribal Representative or other Heritage Consultants assist the Resource Advisors with identifying and locating natural & cultural resource “values at risk”
- Identify Incident Action Plan management objectives
- Develop protection and mitigation strategies, and plan for short- and long-term tactical responses to achieve desired fire effects
  - Point Protection or Area Consideration for Ops?
  - Managing wildfire to achieve resource objectives?

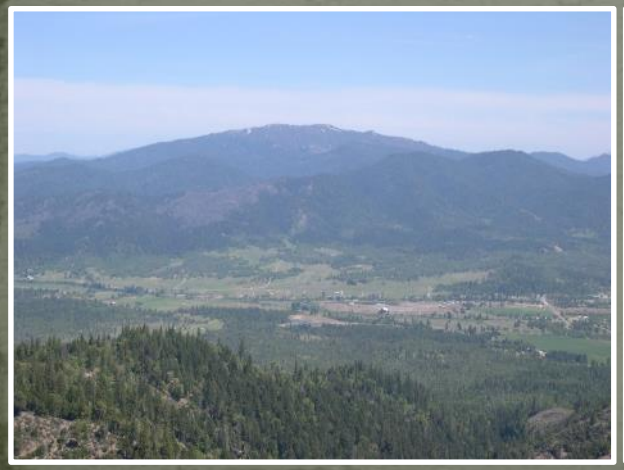
Overview of the

Wildland Fire Decision Support System



Findings and Discussion: Fuels Reduction Strategies

- Fuel treatments are often focused around residential areas (WUI), ignoring the important ecological role that fires have in promoting culturally important plants, habitats, and tribal traditions across, the broader landscape.
- Hazardous fuels reduction treatments can meet ecological and cultural objectives.
- Fuels reduction strategies promote cultural resources while also reducing the undesirable impacts of large, intense wildfires.



Alaska: *Learning to live with and manage more fire!*

- Fuels reduction projects, some fire use and managing wildfires that address Native Alaskan values
- Forest stewardship with fuels and fire management
- Threats to Alaska's communities and forests from wildfire
  - Wildland Urban Interface (WUI) management especially where hazardous fuels build-ups occur due to spruce bark beetle activity.
  - Community-based natural resource management improves wildfire policy planning in interior Alaska
  - Suppression to protect subsistence uses
  - Cultural adaptation to changing fire regimes and effects on valued habitats and resources

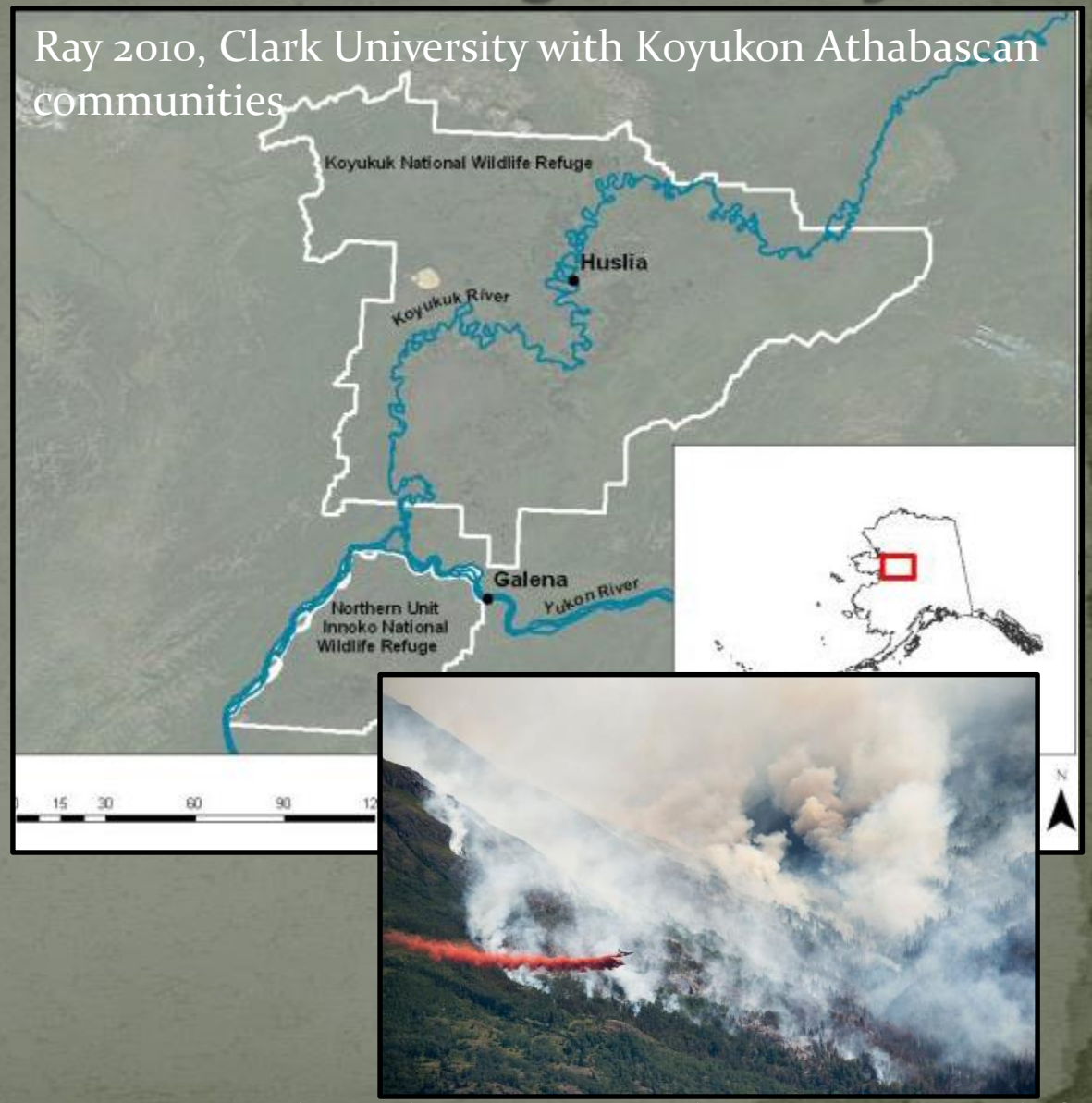


Photo: https://www.adn.com/, McHugh fire

Findings and Discussion: Wildland Fire Management (Planned Ignitions)

- Prescribed fires
  - Traditional lifeways
  - Increasing landscape resilience and heterogeneity
- Tribes desire burning for cultural purposes, but this is often restricted because of land tenure, competing internal and external societal values and capacity.

- Prescribed fires designed to maintain culturally important species, habitats, places, tribal traditions, and other resource objectives.
- Identified obstacles of prescribed fire to meet cultural and land management goals:
  - Lack of funding other than fuels management
  - Administrative and jurisdictional challenges across landscapes with mixed land management

Photos: Examples of Fire Safe Council, Private Property, Tribal Basket weaver burns and USFS-Tribal Fire Management Agreement Burns

Pacific Northwest: *Tribal Burning to Restore Foods & Basketry Resources in Prairie/Woodlands*

Quinault Indian Nation, TNC, and partners

- Objectives:
  - Enhance traditional foods
  - Promote basketry materials
  - Restore wetlands/prairies for wildlife and cultural resources

Source: Adam Martin, Prairie Restoration Specialist "Bringing Fire Back onto the Quinault Indian Nation" 6 Oct. 2016 The Nature Conservancy Blog

"...they're using traditional practices such as fire on Moses Prairie to improve production of berries, roots, bulbs and plants for basket-weaving materials, and stimulate the wetland prairie for wildlife such as ducks, geese, butterflies, bear and elk."

Midwest: *Tribes burning prairie, woodlands and more…*

BIA and the Natural Resource Branch of the Winnebago Agency, in cooperation with the Santee Sioux Tribe of Nebraska

- Objectives:
  - Restoration, maintenance and healing of the forests and rangelands
  - Reduction of hazardous fuels: WUI and cultural sites

"The natural role of fire is an essential part of the ecological process. Using fire as a tool to achieve resource management objectives may be the only effective tool natural resource managers have to restore the natural balance of the wildland on a large-scale."

Example source: Prescribed fire to reduce fuel loading and wildfire potential around cultural grounds on the Osage Indian Reservation. DOI Office of Special Trustee for Am. Indians 2008, Vol. 8, Issue 4

Southeastern Tribal Fire Use: *Burning almost all year long*

Applying fire every three to five years removes invasive plants and disease and allows fires to burn with less intensity

- Objectives:
  - Creating space for culturally important plants
  - Opens up the forest floor to allow wildlife to forage
  - Quantity, quality and access to important plants medicine women and men depend on for cultural and spiritual practices
  - Removes vegetation that poses risk to tribal infrastructure, homes, and safety

Burning cypress on Seminole Reservation, Florida.

Source: Robyn Broyles, BIA Fire Communication & Education Specialist

Southeastern Tribal Fire Use: *Integrated Fuels Management*

- Objectives:
  - Range and wetland habitat improvement
  - Basketry and wildlife-Cane/Riparian
  - Reduction of hazardous fuels-WUI

National Park Service, the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, and the Florida Department of Forestry partnership

Prescribed fire creates a buffer between Miccosukee Reserve Area and Everglades National Park. NPS photo, Everglades National Park

Prescribed burn; Mississippi Band of Choctaw. (BIA Fire Management) Source: www.southernwildfire.net

"Land managers have worked to maintain fire-adapted ecosystems based on tribal use of fire."

Eastern Lakes Region: *Tribes, Altered Forests and Fire Regimes- Opportunities with Partners*

Bands of Lake Superior Chippewa, Leech Lake Band of Ojibwe, other Tribes, and the formulation of Prescribed Fire Council(s) for safety and resource enhancement

- Objectives:
  - Reduce hazardous fuel loading: WUI
  - Enhance/Maintain wildlife habitat
    - Moose browse
  - Site prep for restoration of fire-dependent plants and wildlife species
  - Control insects and diseases
  - Trad. Foods-Blueberry/fruit production
  - Landscape scenic values

Prescribed burning for multiple objectives: Fond du Lac, BIA, and other Northern Minnesota reservations working together . Photos Source: http://www.fdlrez.com/RM/fireprotection.htm

Findings and Discussion: Wildland Fire Management (Unplanned Ignitions)

- Identified key topics regarding wildfires and fires managed to meet objectives on tribal lands:
  - Communication
  - Planning
  - Education
  - Funding to support wildland fire management
- Overarching theme challenges for wildfires on tribal lands stem from:
  - Lack of communication or miscommunication between managers and local communities, between agencies, and between agencies and tribes

- Develop strategies and approaches that improve communication between wildfire incident managers, agency decision makers, and tribes
- Efforts are needed to prevent or mitigate adverse impacts to tribal cultural resources, such as sacred sites, where fire suppression tactics may have undesirable impacts
- Allowing wildfire to burn through these areas or assigning local tribal staff to work on point protection or mitigation treatments are options to consider

Western Klamath Restoration Partnership field trip near private/tribal lands 2015 and Butler Wildfire 2013

Interior Pacific Northwest/Columbia Basin Region: *Timber and Cultural Resources*

- Warm Springs, Yakama, Colville, Spokane, and Nez Perce Reservations face increasing larger wildfires and threats to communities, forests/rangelands and different resources across the landscape
- Objectives:
  - Suppression of fires that threaten life, property and resources
  - Managing wildfire to reduce impacts and enhance fire dependent resources
  - Forests include Timber and Cultural Resources
  - Rangelands include Grazing and non-forested resources
  - Protection of water sources and fisheries

Yakama Nation Fire and Fields Program members. Controlled burn 15 June 2016. Source: Sofia Jaramillo/Yakima Herald Republic , http://www.yakamanationfire.com

Rocky Mountain Region: *Suppression vs. Fire Use?*

Confederated Salish and Kootenai Tribes [Flathead Indian Reservation]:

- Tribal Mission Mountains Wilderness fire use
- Multiple fall season prescribed fire projects
- Objectives:
  - Reduce fire behavior potential in areas in and around the WUI
  - To protect and enhance commercial timber forests
  - To improve wildlife habitat while not impacting tribal cultural resources
  - Maintaining vegetation diversity: Foods & Medicines

Photo Source: U.S. Fish and Wildlife Service Fire management planning on Salish and Kootenai tribal lands in MT.

"*Like traditional fire use practices, prescribed fire provides ecological benefits used to restore and maintain ecological structures and functions to achieve land-management objectives for the benefit, protection, maintenance, sustainability, and enhancement of many natural and cultural resources*" Tony Harwood, Div. Manager [Source: Char-Koosta News 9/22/16]

Rocky Mountain Region: *Suppression vs. Fire Use?*

Southern Ute Prescribed burning

- Objectives:
  - Cultural and traditional values
  - Provide employment and training opportunities
  - Fiscal accountability and responsibility
  - Forest restoration of timber and wildlife habitat

Source: https://www.southernute-nsn.gov/natural-resources/forestry/

Crow Agency BIA

- Objectives:
  - Firefighter and public safety
  - Reduce fuels in WUI
  - Control shrub growth/increase forage
  - Range improvement
  - Noxious weed control
  - Managed wildfire for resource objectives

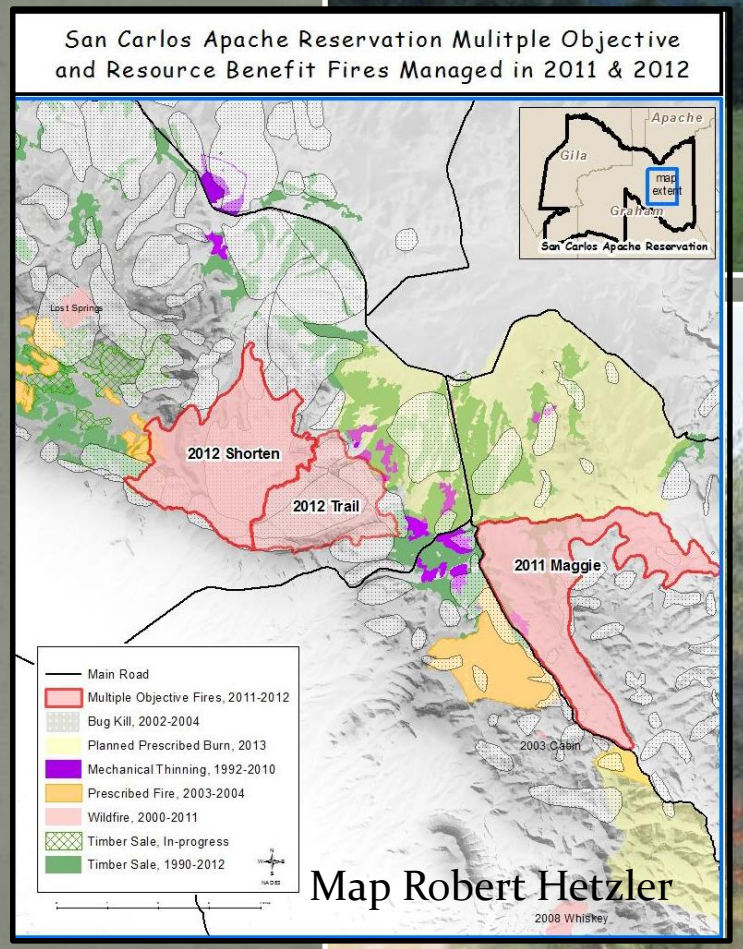
Blackfeet Nation's Objectives:

Aggressive suppression and control of unplanned fires on reservation
Managed wildfire for resource objectives

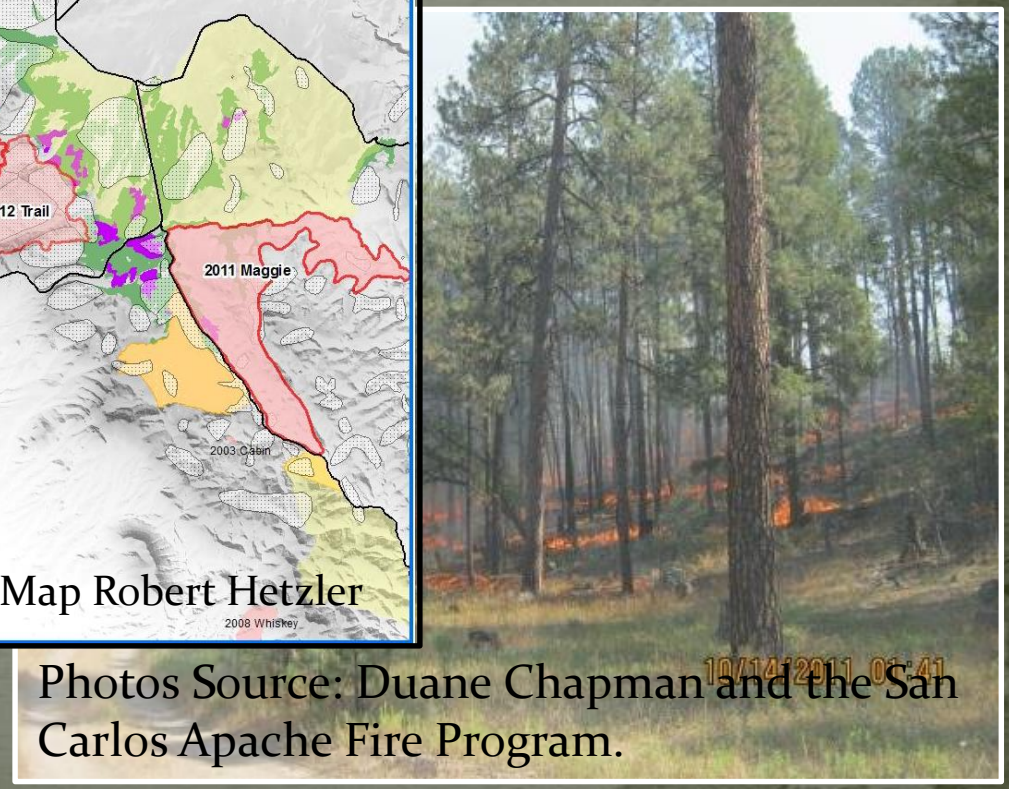
Southwest Tribes and Partners: *Working to Burn for Many Resources and Culture*

San Carlos Apache with Cooperators:

- Objectives and Values:
  - Restoring and maintaining resilient landscapes
  - Increased community and firefighter safety
  - Enhanced fire management opportunities
  - Greater potential to reduced suppression cost and fire size
  - Minimized negative effects on resources



Map Robert Hetzler



Photos Source: Duane Chapman and the San Carlos Apache Fire Program.

Findings and Discussion: Use of TK and WK in Research

- Issues sharing of TK and WK:
  - Communication challenges between researchers and the tribes, including sharing of TK from tribal elders with managers and researchers
  - Best practices for investigating and sharing TK are needed
  - Research inquisitiveness can harm relationships if researchers inadvertently offend tribal members with their questions and assumptions

- Use of TK and WK in fire research important
- Tribal questions discussed that are relevant while respectful and sensitive to TK and tribal cultures.
- Researchers aware of tribal intellectual property rights, data sharing and ownership agreements for the use of TK

Photos: Beargrass research in Western Cascades with Siletz elder/basket weaver and Ca. Black Oak research in the Sierra Nevada with North Fork Mono elders

Findings and Discussion: Trust and Understanding Leads to Effective Management and Research

- Relationships build common understanding and trust among tribes, agencies, academics, organizations, and others
- Managers and researchers understand
  - Broad versus specific tribal fire-related issues and values
  - Prescriptions and treatments reflect local and general public values for projects and programs
- Research partnerships that incorporate tribal knowledge and values can foster the development of the best available science to guide management and for the formation of meaningful policy that serves the needs of tribal communities and the public

Photos: WKRP field crew training and field trips with Karuk Tribe

Implications and Recommendations- Finding that an approach is needed : Developing a Framework

- Provide a framework for improving fire management and research based on traditional and Western Knowledge systems.
- Including 10 Key Elements for applying Traditional Knowledge and Western Knowledge in wildland fire and fuels management and research.
- The objectives of this framework are to strengthen communication, developing trust and partnerships among managers, scientists, and tribal members.

Key elements
1. *Sources of TK* Literature based or communication with tribes and tribal organizations.
2. *Tribal outreach* Request of tribal government, cultural committee, or members for incorporation of applicable TK.
3. *Tribal consultation* Government-to-government—identify management or research issues and actions of interest.
4. *Building trust* Tribal identification, transfer, and authorization of TK use.
5. *Active learning for TK and WK* Cross-cultural appreciation of TK used with management actions and research methods.
6. *Tribal oversight* Coordination and communication with tribes on planning and implementation of projects.
7. *Active listening and sharing* TK informs workforce, treatment implementation, mitigation activities or research practices.
8. *Applying TK with WK* Tribal participation and stewardship activities.
9. *Tribal review* Tribal approval and oversight of project implementation and results.
10. *Reporting* Share and celebrate accomplishments and lessons learned from TK and WK.

Framework: Key Elements 1 & 2

Elements	Management	Research
1. Sources of TK Literature based or communication with tribes and tribal organizations	Publications and presentations of fire effects on cultural resources, traditional fire knowledge, and practices.	Conduct literature review. Ethnographic materials at universities, agencies, or tribal archives.
2. Tribal Outreach Request of tribal government, cultural committee, or members for incorporation of applicable TK.	Contact tribes about planning and management strategies, short- and long-term project objectives.	Contact tribes and tribal organizations for researchable questions of interest and science support needs.

Framework: Key Elements 3 & 4

Elements	Management	Research
3. Tribal consultation Government-to-Government—Identify management or research issues and actions of interest	Consult with tribal government, departments, or committees for proposed actions (emergency or NEPA)…	Request input from tribal councils, departments, and committees to develop preliminary research questions and methods.
4. Building trust Tribal identification, transfer, and authorization of TK use.	Develop or renew agency-tribe fire management agreement. Identify designated tribal representatives and heritage advisors.	Obtain formal agreements, permission or authorization of TK use: IRB, OMB, and tribal approval.

Framework: Key Elements 5 & 6

Elements	Management	Research
5. Active learning for TK and WK Cross-cultural appreciation of TK used with management actions and research methods.	Workforce education of management effects on heritage/cultural resources and tribal values. TK informs NEPA and WFDSS planning.	Researcher and student education on tribal TK, fire use, and fire effects through academic courses, workshops and field trips. *Tribal research mentors
6. Tribal oversight Coordination and communication with tribes on planning and implementation of projects.	Tribes review proposed management treatments or incident objectives and identify missing values or issues.	Tribes approve research methods, metrics used, and analysis planned, identifying specific values or addressing issues of concern.

Framework: Key Elements 7 & 8

Elements	Management	Research
7. Active listening and sharing TK informs workforce, treatment implementation, mitigation activities or research practices.	Interdisciplinary or Incident Command Team works with tribal staff to identify values at risk and develop mitigation actions.	Tribal members/youth assist researchers. Collect data with tribal members. Conduct new interviews if needed.
8. Applying TK with WK Tribal participation and stewardship activities.	Tribal partnerships using TK to guide fuels treatments, fire operations and mitigation strategies.	TK collaboratively guides experimental methods, study sites, treatments, indicators, or variables of research interest developed.

Framework: Key Elements 9 & 10

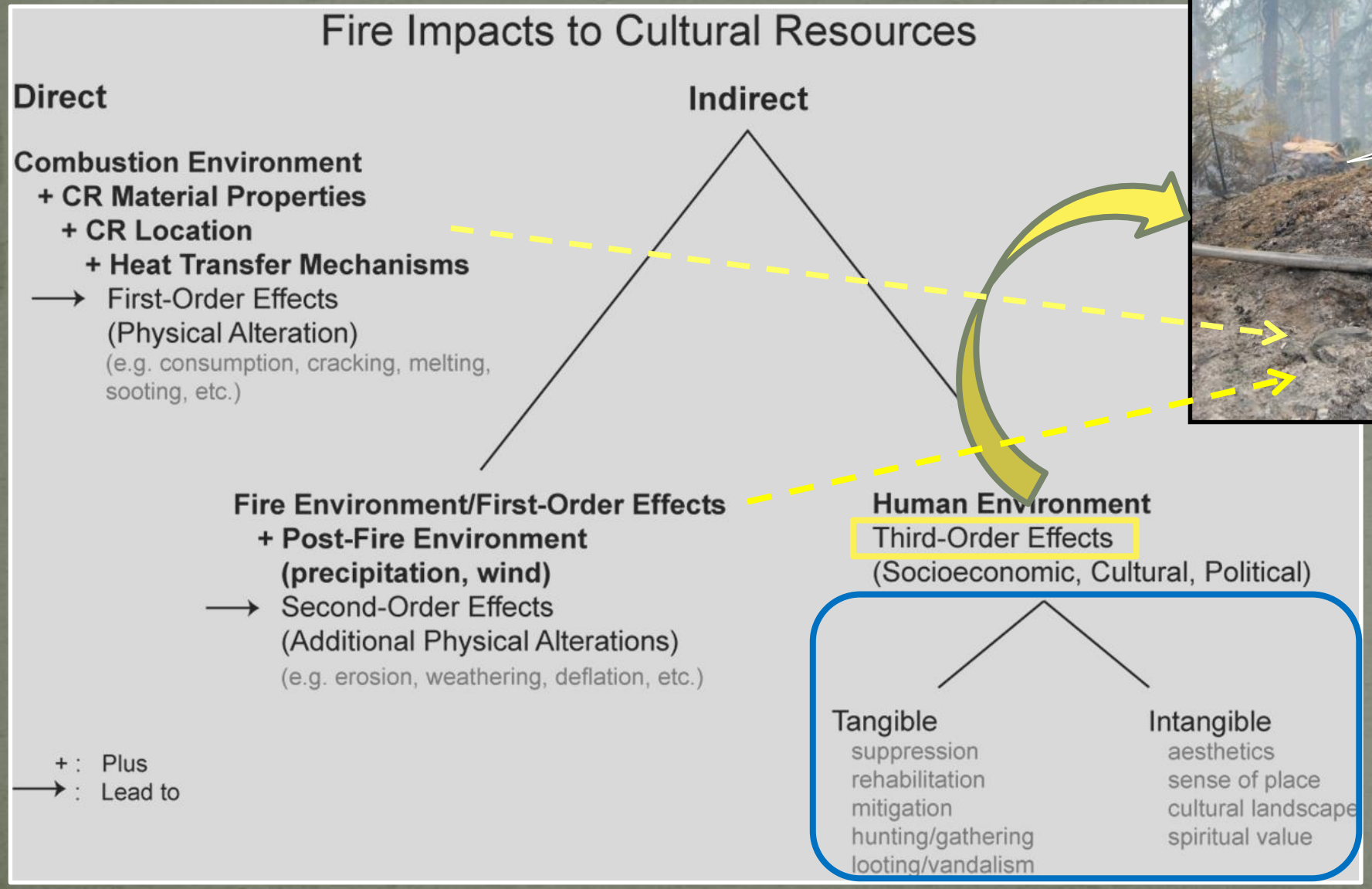
Elements	Management	Research
9. Tribal review Tribal approval and oversight of project implementation and results.	Tribes review project implementation or fire management and modify actions for adaptive management.	Tribes review analysis results, discussion, and recommendations for management or additional research. Clarify TK and data ownership.
10. Reporting Share and celebrate accomplishments and lessons learned from TK and WK.	Identify post-fire actions: BAER practices, share & reflect on lessons learned from After Action Review.	Best available science is developed. Publications and presentations co-authored with tribes and tribal organizations.

Implications and Recommendations: TK Informs Effective Fire Management

- TK informs managers, researchers, and the public about how wildland fire affects the tangible and intangible values associated with natural and cultural resources
- Both TK and WK can enhance understanding of fire effects and associated cultural practices using fire-influenced landscapes for different ecosystems, habitats, and a range of fungi, plant, and animal species

Klamath-Siskiyou Oak Network field trip Fall 2016: Table Rocks near Medford Oregon with Lomakatsi, The Nature Conservancy, Agency & Tribal representatives, and oak restorationists.

Linking TEK, Fire Effects, Cultural Resources and Tribal Values



Sacred tree: "Hazard" Sugar pine stump

Marker: River rock

How to improve our understanding of fire management actions on contemporary tribal landscape uses and values?

Source: Ryan et al. 2012: GTR-42, Vol. 3 based on Lake 2007: 343

Implications and Recommendations: Consultation, Coordination, and Communication Promotes Collaboration

- Building relationships and trust required for fire management challenges across jurisdictional boundaries
- Consultation policies and directives for American Indian tribes support coordination and communication while building trust, gaining respect, and fostering collaboration
- Initiating communication across cultural and jurisdictional boundaries improved information for use of TK and WK for effective fire management and research
- Collaboration goals are clear for member roles and responsibilities, contributions and decision authority

Photo: Incident Management Team, USFS Line Officers and Karuk Tribal Council discuss Butler wildfire management strategies August 2013

Conclusions: Key findings emerged during the workshops and were reiterated in the literature review 1 & 2

- Communication is critical to effective collaboration across tribal and nontribal management and research entities
- Communication about TK should be done in a culturally sensitive and respectful way that honors tribal traditions, cultures, and the sensitivity for the types of knowledge shared.

Photos: Top-Klamath Basin Tribal Youth Climate Change and Forestry/Food Security Project; Bottom-WKRP USFS scientists meet with Karuk Tribe and other partners in the field to discuss research and science support needs

Conclusions: Key findings emerged during the workshops and were reiterated in the literature review 3 & 4

- In addition to identifying culturally sensitive resources and values, TK can inform and guide fuels and fire management to perpetuate living and nonliving resources culturally important to tribes.
- Collaboration will be most effective if time is spent to build relationships, gain trust, share knowledge, and recognize different perspectives on the outcomes and implications of fire and resource management.

Western Klamath Restoration Partnership field trip with Karuk Tribe, USFS Klamath and Six Rivers NF, local Fire Safe Councils, and public

Conclusions: Key findings emerged during the workshops and were reiterated in the literature review 5 & 6

- To gain support for using fire as a tool for multiple objectives, community awareness, acceptance of fire, and the traditional and ecological roles of fire, including culturally important ecosystem services, should be increased.
- There is a need to identify and highlight examples of successful cross-jurisdiction collaboration for the research and management of wildland fire conducted with tribes.

The Nature Conservancy's Klamath River TREX (2015) and Indigenous Peoples Burning Network

Aligning Tribal Communities Values with Landscape Restoration, Climate Change, and Wildland Fire Research and Management Strategies

- Landscape Restoration Strategies
  - Heterogeneity and Resilience considerations
- Climate Change Vulnerability Assessments and Adaptation Planning Efforts
  - Threats and Stressors to environment and community practices
  - Planning considerations for Cultural Ecosystem Services
- The National Cohesive Strategy for Wildland Fire Management Implementation
  - Resilient landscapes
  - Fire Adapted Communities [Fire Dependent Cultures]
  - Safe and Effective Wildfire Management Response
- Linking to Tribal and Rural Community Values
  - Alignment of multiple resource objectives with community values for the reintroduction of fire or managing wildfires

TEK – Restoration of Forests, Fire Regimes, and Cultural Practices: *A form of Climate Adaptation?*

- Primary objectives are to restore cultural fire regimes which will
  - Restore structure, composition, and ecological and culturally valuable functions of forest, shrub, and grassland habitats.
  - *Teaching TEK and fire ecology to tribal youth and adults
- Initial fuels reduction and prescribed fire treatments located near communities (WUI), critical road/trail systems, and ridges.
  - Treatments that promote socio-ecological resilience of fire adapted habitats supporting fire dependent cultures
  - *Reinstating traditional burning in a modern context to achieve multiple resource objectives

Examples: TNC-TREX support of local tribes, Fire Safe Councils and community members. BIA-Tribal Reserved Treaty Lands Program with agreements for tribal burning across all jurisdictions in partnership.

TNC-Karuk Tribe –Mid Klamath Watershed Council's Klamath River TREX

Existing and Emergent Policies and Authorities

- The National Cohesive Strategy
- Master Cooperative Wildland Fire Management and Stafford Act Response Agreement
- The National Historic Preservation Act
  - Traditional Cultural Properties
- Archaeological Resource Protection Act
- Chapter 32A Cultural and Heritage Cooperation Authority 3055 Forest Products and 3056 Prohibition on disclosure
- Others applicable Nationally to Locally?

- *Curently*-H.R.2936 - Resilient Federal Forests Act of 2017:
  - "(1) AUTHORITY.—At the request of an Indian Tribe, the Secretary concerned may agree to treat Federal forest land as Indian forest land for purposes of planning and conducting forest land management activities under this section if the Federal forest land is located within, or mostly within, a geographic area that presents a feature or involves circumstances principally relevant to that Indian Tribe, such as Federal forest land ceded to the United States by treaty, Federal forest land within the boundaries of a current or former reservation, or Federal forest land adjudicated to be Tribal homelands.

Closing thoughts and questions:

- Thanks to
  - Tribal Managers and Resource Specialists who shared knowledge
  - JFSP, USFS RMRS, Northern Rockies Fire Science Network, & PSW Fire and Fuels Program
  - TNC Indigenous Peoples Burning Network

Webinar Supporting Reference:
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Suggested resources for additional information:

http://nrfirescience.org/hot-topics/fire-traditional-knowledge

http://www.csktribes.org/natural-resources/tribal-forestry/fire-history-project

https://www.kcet.org/shows/tending-the-wild

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Stewart, O.C. 2002. Forgotten fires: Native Americans and the transient wilderness. University of Oklahoma Press, Norman, OK. 364 p.