

EVALUATION OF RESTORATION TECHNIQUES AND MANAGEMENT
PRACTICES OF TULE PERTAINING TO ECO-CULTURAL USE

By

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ABSTRACT

EVALUATION OF RESTORATION TECHNIQUES AND MANAGEMENT PRACTICES OF TULE PERTAINING TO ECO-CULTURAL USE

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Tule (*Schoenoplectus* sp.) is a native plant commonly used by California tribes and Indigenous people throughout the world (Macía & Balslev 2000). Ecological, social and regulatory threats to its use in contemporary Indigenous culture highlight major issues concerning natural resource management. My ancestral homeland, what is now Yosemite National Park, stands as a figurehead in the intersection of land management and Indigenous peoples. An important element of Traditional Ecological Management (TEM) for quality basketry materials is prescribed fire, an element western science is increasingly acknowledging for creating a more biodiverse and heterogeneous landscape. This research was conducted in Mariposa and Colusa counties and aimed to examine the Traditional Ecological Knowledge (TEK) of prescribed burning and cutting to manage tule for eco-cultural purposes. An interdisciplinary approach used archival and legal research along with interviews of ten Native American cultural practitioners and four public land agency staff personnel between March 2017 and March 2018 to assess the quality of tule as sought by weavers/cultural

practitioners and to understand perspectives of public land agency professionals' assessment of TEK into resource management. The interviews provided knowledge on traditional gathering techniques as well as insight of qualities sought by weavers and Indigenous relationships with plants and their environment. A field study at Colusa National Wildlife Refuge (CNWR) examined the before and after data from a prescribed burn on March 28, 2018 with post-sample data collection occurring April 28-30th, 2018 to answer the question: Does prescribed fire increase tule abundance and/or quality for basketry purposes? In areas that were cut, gathered and later burned, the mean abundance of emergent tule, important for eco-cultural purposes was (10), greater than the mean abundance of tule in the burn (9.7), cut treatments (3.8) or the control (4.3). ANOVA results indicated the burn treatment to be the most significant factor ($p\text{-value} = 1.061\text{e-}14$) for live tule abundance. Archival and legal research unveiled remarkable documentation of the historic traditional perspectives of Indigenous land management as well as helped illustrate the barriers Indigenous people continue to face.

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hope to help better this agency's ability to meet its mission in protecting natural and cultural resources truly unimpaired for future generations, including Indigenous children many generations from now.

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INTRODUCTION

Baskets can symbolically be described as nests as they hold cultural knowledge and customs essential for future generations. Basketry is a cultural art in danger of disappearing along with the biodiversity of traditional gathering areas due to the exclusion of cultural burns and harvesting (Pfeiffer & Ortiz 2007), although many weavers stay positive showing their continued resilience. Restoring native plants for basketry and traditional purposes encourage a biodiverse landscape, enabling cultural transmission to occur.

As a young person in awe of my relatives' baskets, I yearned to make baskets myself. The concern for the loss of basket makers and the availability of quality basketry materials and traditional foods for American Indians' health and wellbeing is personal to me. Many revitalization efforts started in the 1990s with the foundation of the California Indian Basketweavers Association (CIBA) (Kallenbach 2009). Cultural revitalization grants with the National Park Service (NPS) exist for Federally Recognized tribes as do scholarships, healthcare benefits and even jobs within the Department of Interior (DOI) (US DOI, Indian Affairs 2018). For non-Federally Recognized tribes, many American Indian people face harsher realities simply due to the added burden of proving existence while also combating the same social ills from intergenerational trauma without the benefits of sovereignty, self-determination and the abilities for economic development (Miller 2004).

Whether or not the Federal government acknowledges tribal nations, American Indian people continue to exist, practicing their traditions and maintaining relationships with their homelands. Federal and state laws requiring tribal consultation include non-acknowledged tribes specifically regarding Native American Graves Protection and Repatriation Act (NAGPRA), Indian Child Welfare Act (ICWA) and many other laws.

Restoring native plants for cultural purposes, including traditional foods is of utmost importance to American Indian people with disproportionately high rates of heart disease, diabetes and other health disorders (Indian Health Service 2018). Revitalizing reciprocal relationships encourages American Indians to exercise and eat traditional foods, as well as improve emotional and spiritual wellbeing (Long et al. 2003).

Tule (*Shoenoplectus* sp.), native to California is a user-friendly plant, easily recognizable and usually abundant in marshes. The first basket I made was a tule basket, and I believe that restoring this plant's quality for basketry can help revitalize the knowledge and practice of basketry for younger generations. Although I've been raised in my culture, basketry materials have mostly been given to me. This missing part of not learning how to gather basketry plants from my direct bloodline has often left me saddened, but I know that learning from others is how I help bring this knowledge back to my family. Finding tule in the wild was my first obstacle as gatherers are often sensitive of gathering places. Intertwined with this are the rules and management of public lands associated with western conservation perspectives, politics and western societal cultural norms.

Ethnographic data, archival research and semi-formal interviews associated with managing and harvesting tule provided descriptions of the qualities sought by Native American weavers and cultural practitioners. This research project involved two components, one that used social science approaches, i.e. gathering information related to Traditional Ecological Management (TEM) and Traditional Ecological Knowledge (TEK) and an ecological science approach in conducting a field study that replicated traditional forms of TEM to determine the treatment that best restores tule abundance and quality for eco-cultural purposes. Abundance of emergent tule shoots, water levels and tule height, estimated density and obvious presence of rust fungus among untreated control plots (CONTROL) and three types of treatment plots: cut and gather (CUT), cut, gather and burn (CUTBURN) and burn (BURN) treatment plots of tule. It is expected that tule in the treated burn plots will increase in abundance of shoots with decreasing evidence of fungus, thus improving in quality basketry material. Tule cutting and gathering should promote growth but may not reduce the presence of rust fungus.

Interviews of ten weavers/cultural practitioners assessed whether they believe traditional ecological knowledge (TEK) and the skill of weaving is passing to younger generations of tribal members and how public land managers manage for eco-cultural purposes. Four interviews of public land agency officials/staff sought to understand whether native plants are managed for cultural uses.

Research Objectives/ Questions/Hypothesis

The primary objective of this research is to examine the effect of various restoration techniques on improving the structure and quality of tule for eco-cultural uses, meaning the management of heterogenous landscapes for habitat diversity and potential cultural use purposes. How can interviews with cultural practitioners/weavers help identify specified qualities of tule sought for cultural use? Does burning and/or cutting or a combination of those treatments of tule promote greater abundance and superior basketry material? Hypotheses: (H1) Archival, ethnographic, and archeological data will provide insights into the TEM of tule. (H2) Tule quality improves with prescribed burning as evidenced by a visual reduction in fungus and increased abundance (number) of emergent tule shoots. (H3) Cutting tule will promote greater abundance by encouraging new shoot growth. (H4) Traditional Ecological Knowledge (TEK) associated with gathering and weaving is diminishing as older generations pass away, habitat loss and bureaucratic obstacles inhibit or slow Indigenous peoples' rights to gather or manage plants for cultural uses.

Literature Review

Barriers to Basket Weavers

Plants used for basketry are in decline as are the qualities that make them useful (Anderson 1997; Shebitz 2005; Pfeiffer & Ortiz 2007; Lepofsky 2009; Fowler & Lepofsky 2011). Fire exclusion in California has inflicted a tremendous toll on the

biodiversity of the landscape and culturally utilized plants (Underwood & Siefkin 2003). Without active management, tule and other basketry plants may no longer be useable; TEM and basketry knowledge may soon cease to exist with the passing of elders. Access, permission and the inability to manage and harvest plants in Indigenous homelands on private and public lands, and the application of herbicide sprayed to eliminate invasive plants are some of the obstacle's weavers face (Pfeiffer & Ortiz 2007).

Traditional Ecological Knowledge (TEK)

TEK is time-tested knowledge that is passed down from generation to generation that is usually localized, containing spiritual beliefs about relationships and responsibilities to the earth and creation (Cajete 2000; Kimmerer 2011). In order for it to be transmitted, it must be practiced so that it can be continually generated. Interviews of elders and cultural practitioners can help preserve and transmit this knowledge to younger generations willing to learn ancient care taking practices for cultural and environmental health and wellbeing. TEK remains among basket weavers because of the techniques passed down through generations and the close relationships that exist between weavers and the environment. Weavers who rely on specific plants for their traditions are often the first to notice declines in plant populations (Berkes et al. 2000; Hart et al. 2004). TEK incorporation can improve research and resource management in the restoration of native plants as it is empirically based and useful to understand and predict environmental events (Huntington 2000; Shebitz 2005; Hummel et al. 2015; Lertzman 2009).

Cultural Uses of Tule and Management of Native Plants

Tule was used throughout California for everyday purposes such as basketry, food, boats, bed matting, duck decoys and other utilitarian purposes (Barrett & Gifford 1933; Heizer & Elsasser 1980; Fowler 1990; Tilley 2012). The use of tule by many tribes was also due to its once widespread availability in wetlands, estimated to have been reduced by 90% in California (Blankenbuehler 2016). Tule, however, accumulates quickly and decomposes slowly in marshland habitats. Traditionally, American Indians managed tule by burning, or cutting and gathering the deciduous plant (Anderson 2005). Burning around ponds, lakes, and sloughs promoted new shoots for basketry and helped other plant taxa as well in maintaining edge complexity and allowing emergent shoots to form (Diekmann et al. 2007). Many culturally significant plants require the use of fire or active management and manipulation to enhance abundance and quality as well as to reduce the effects of pests (Anderson 1999; Long et al. 2003; Lake 2007; Aldern & Goode 2012; Hankins 2013; Vale 2013). Some plants possibly were shaped evolutionarily for specific qualities by coppicing, pruning, tilling, sowing, and burning (Anderson & Moratto 1996) and can be restored and used for their traditional properties. The degree of anthropogenic intervention of plants and landscapes by Indigenous people is underestimated (Lepofsky & Lertzman 2008) in California as 75% of plant material items manufactured by Sierra Miwok, Western Mono, Foothill Yokuts, Tubatulapa, Southern Maidu, Washoe, and Paiute tribes were made with epicormic branches and shoots from a diversity of native species (Anderson 1994).

Due to fire exclusion, the natural succession of meadows, wetlands, valley grasslands, coastal scrublands, and forests ecotypes has degraded the habitat of basketry plants as well as the Indigenous cultural customs that depend on these ecosystems (Anderson 1996; Pfeiffer & Ortiz 2007). The modification of site conditions in the absence of periodic burning can cause wetland areas to fill with organic matter rendering sites less suitable for tule for traditional cultural purposes.

Social and Ecological Benefits of Restoration

Ecological systems exist within a social context (Lertzman 2009). Ecological restoration seeks to reverse the degradation of resources and loss of biodiversity over time as humans have negatively affected landscapes (Geist & Galatowitsch 1999; Senos 2008). Land managers are beginning to experiment with prescribed burning and grazing to reduce residual plant material, and to encourage emergent plants for waterfowl use as nests and food (Smith & Kadlec 1985; McWilliams et al. 2007).

Restoring plants for cultural purposes has the potential to improve the health and well-being of Indigenous people by ensuring cultural continuance and nutritional food availability (Long et al. 2016). Prescribed burns help to reduce high fuel loads and pests and encourage the growth of plants (Biswell 1999) associated with basketry and other cultural purposes (Underwood & Siefkin 2003). Other essential effects may include creating a more resilient ecosystem by managing the landscape for heterogeneity, promoting biodiversity among plants and animals while revitalizing Indigenous care-taking relationships with ancestral and sacred places (Sugihara et al. 2006; Hankins 2009; Aldern & Goode 2014; Lepofsky 2009). Restoring cultural fires has the potential to

benefit human well-being and create long-term commitments to restoration processes (Geist & Galatowitsch 1999; Keough & Blahna 2006; Ruppert 2013; Goode 2014; Reyes-García et al. 2018). For those who have a deep relationship with the land, long-term commitments to care for the land are celebrated.

Ecological restoration success depends on effective partnerships between conservationists, managers, and Indigenous people and should be defined ethically as well as technically (Geist & Galatowitsch 1999; Uprety et al. 2012). Indigenous TEK and management have been ignored for decades (Eriksen & Hankins 2014). Expanding the definition of restoration to be more holistic and inclusive in working with tribes and communities to restore culturally significant plants and landscapes may help revitalize tribal knowledge and social cohesion. Historical, social, cultural, political, aesthetic and moral aspects should be integrated into the ecological restoration and research used in project planning and implementation.

Native American Homelands

There is a widespread naive notion that parks and preserves were "uninhabited" and "pristine" landscapes with little to no human influence before western management (Diekmann et al. 2007; Wolfley 2016). Archeological, ethnological, and dendrochronological research are determining the extent of the (once thought absent) influence American Indian people had on the landscape. There is increased understanding that these "natural" landscapes were effectively and often intensively managed for thousands of years for food, culture, basketry, and wildlife habitat enhancement (Anderson & Carpenter 1991; Anderson 1994; Anderson 2005; Diekmann et al. 2007;

Lepofsky 2009; Lertzman 2009) and that these landscapes were cultural or ethnocultural landscapes. Imposing non-Indigenous management paradigms by not actively managing specific habitats or gathering areas may be similar to introducing invasive species or promoting other changes to native ecosystems (Long et al. 2003).

The establishment of the National Park Service (NPS) and United States Forest Service (USFS) resulted in the decline and displacement of Indigenous people and the associated management of their homelands (Huntsinger & McCaffrey 1995; Diekmann et al. 2007). Decades of fire exclusion by the NPS has decreased biodiversity and average tree diameter and allowed conifer encroachment and the accumulation of high fuel loads in Yosemite Valley (Anderson & Carpenter 1991). Fire suppression has also resulted in the decline of traditional practices and culture (Rentz 2003; Pfeiffer & Ortiz 2007; Burr 2013).

Yosemite Valley was managed quite differently by the Ahwahneechee, whose descendants are associated with seven different tribes with differing Federal Recognition (political) status: The American Indian Council of Mariposa County, Inc. (Southern Sierra Miwuk Nation), the North Fork Mono Rancheria, The Tuolumne Band of Me-Wuk Indians, the Picayune Rancheria, the Mono Lake Indian Community (Kutzadika'a), the Bridgeport Paiute Indian Colony and the Bishop Paiute Tribe. Indigenous people of Yosemite Valley burned the landscape and different habitats to promote the growth of plants for basketry, food and to open forest corridors to attract wildlife, to remove old growth for viewing those approaching, among other cultural reasons (Gassaway 2007).

Dendrochronological research on lightning ignition patterns and fire history records in Yosemite Valley confirm ethnographic accounts of American Indians regularly using fire to manage the land with the use of small, rotating, low-intensity ground fires for proto-agricultural purposes (Gassaway 2009). Pre-fire suppression (1890), the historical mean fire return interval in Yosemite Valley was 1.92 years, similar to other areas in the Sierra Nevada but attributed explicitly to American Indians based on fire scarred trees within archaeological sites (Gassaway 2007). Lightning naturally occurs on the ridges of the valley due to topography; lightning ignited fires in Yosemite Valley have been documented only once since the 1930s (Gassaway 2009).

Denying American Indian influence on the landscape has significant social and ecological implications for the management of public and private land (Diekmann et al. 2007). By reinforcing National Parks and National Forests as landscapes void of human influence or even existence and best protected by disregarding the traditional management practices of Indigenous people, ensures these cultural landscapes are forgotten. Ignoring the needs and influences Indigenous peoples had on these landscapes is used to deny territorial claims and curtail traditional management practices from the establishment of National Parks until today (Keller & Turek 1999; Binnema & Niemi 2006; West & Brockington 2006; Diekmann et al. 2007; Wolfley 2016).

The Importance of Reciprocal Relationships for American Indian Health and Wellbeing

American Indians, as well as many other Indigenous people colonized around the world, face a higher proportion of social ills due to inter-generational trauma. American Indian young adults, ages 18-24 are at the highest risk of suicide with 70% of American

Indian/Alaska Native (AI/AN) deaths occurring in nonmetropolitan areas, including rural settings (Leavitt 2018). Durie (2004) writes that most Indigenous people believe that their Indigeneity is defined by a strong relationship between the environment, tribe, and culture. For many Indigenous people, a reciprocal relationship exists between the caretaking of their ancestral homelands and the support their land provides them (Long et al. 2003). Restoring these relationships is necessary to save Indigenous lives.

The suppression of traditional Indigenous practices has been substituted for another type of management, perceived by the dominant culture's definition of "natural" as without human presence. Psychologically, this viewpoint erases Indigenous people, leaving a skewed relationship of humans' responsibility and ability to live with nature sustainably. Many positive health benefits exist for people interacting with nature (Maller et al. 2006). Much like the healing benefits restoration workers accrue from working outside, Indigenous people once removed should be afforded opportunities to re-establish these connections. The reapplication of traditional burning and traditional management of culturally significant plants in public lands with the involvement of local tribes can restore the proliferation of culturally significant native species and help repair Indigenous peoples' connection with their ancestral homelands and traditions as caretakers, potentially improving Indigenous health and wellbeing (Durie 2004).

Riparian and Marshland Fire Restoration

Studies are beginning to focus more on the effects of burning in riparian habitats (Bisson et al. 2003; Dwire & Kauffman 2003; Bêche et al. 2005; McWilliams et al. 2007; Pettit & Naiman 2007; Arkle & Pilliod 2010; Flores et al. 2011). Restoring cultural

riparian/marsh burning increases the heterogeneity of the landscape associated with high biodiversity (Hankins 2013; Anderson & Rosenthal 2015). The structural integrity of the aerenchyma, air-filled tule shoots, is vital for waterfowl forage and nesting (Sloey et al. 2016). Much like birds weave nests, these same qualities and habitats may be similar to the quality sought by weavers and cultural practitioners for baskets and other traditional cultural purposes. This research will further contribute to the knowledge about the restoration of emergent wetland macrophytes commonly used in restoration efforts (McWilliams et al. 2007; Ikegami et al. 2009) by analyzing ethnographic data and TEK related to riparian and aquatic habitats to ensure cultural continuance and to improve land management practices.

The quality of basketry materials as perceived by weavers reflects the health of an ecosystem as weavers are intimately aware of their gathering sites through years or generations of use and observation (Pfeiffer & Ortiz 2007). A revitalization of basketry interest by youth can occur with the restoration of a user-friendly basketry material like tule. Cultural burning and active support of gathering practices by local tribes promote cultural continuance (Shebitz 2005; Storm & Shebitz 2006).

Nurturing Living Cultures and Communities

Recently, the NPS released a statement in celebration of its 100th year of existence: *Nurturing Living Cultures and Communities* recognized parks as Indigenous homelands and that knowledge associated with traditional practices and spiritual sites might be forgotten as elders pass away (Colwell et al. 2014). Ensuring these unique relationships are not lost requires collaboration with living cultures and the use of

sustainable cultural practices and traditions (NPS 2017). During the Obama administration, the National Park System Advisory Board recommended the NPS to preserve ecological integrity and cultural authenticity with continued traditional and sustainable use of natural and cultural resources by Indigenous communities. Other goals stated in *Revisiting Leopold: Resource Stewardship in the National Parks* are avoiding unnecessary bureaucracy in engaging networks, collaborations with academic and other federal institutions as well as partnerships with tribes to manage resources across large-scale landscapes (Colwell et al. 2014).

METHODS AND PROCEDURES

In the social sciences, much of the conservation research has been conducted by individuals who are foreign to the communities they are researching. For me, this research is personal as has been my goal of honoring my family and relations by being able to assist my tribe with Federal Acknowledgement and the ability to continue cultural practices that help heal Indigenous people and the environment. This research comes from a place of deep love and respect for my family and relatives, including our animal and plant relations. Throughout my entire life, one could say I have observed the cultural norms of my relatives at family and ceremonial gatherings. Due to earlier researchers' mining of Indigenous communities' knowledge with little if any benefit to the communities (Miller 2004), I understand the hesitancy many tribal communities feel towards research proposals and I know the importance of gaining permission to conduct research and the associated implications of usually non-Indigenous research paradigms leading to further objectification and potential exploitation of TEK.

Social Science Methods

I sought and received permission from the American Indian Council of Mariposa County also known as the Southern Sierra Miwuk Nation and other Native American interview participants with a responsibility to respectfully listen and protect sensitive information. Permission was also obtained from public land agency staff. Interviews were

conducted with prior approval from the Institutional Review Board (IRB) 16-251 and 16-277, obtained April 30, 2017. I also used participatory observation while attending council meetings and different ceremonial as well as community events and meetings. Four interviews of tribal elders were recorded, and six interviews of cultural practitioners were not recorded. Four agency staff interviews were not recorded. All interviews were semi-formal that followed a list of questions about the qualities sought of tule for different purposes, the time and location of their gathering and whether they believe basketry as a cultural art will continue. Questions for public land agency staff differed in respect to the management public land agencies perform in regard to native plant management. See Appendix A and Appendix B for a list of interview questions. The transcripts were analyzed for common themes including cultural practitioners and public land agency staff knowledge of gathering, teaching and learning about native plant management. This research endeavor is an interdisciplinary/mixed methods project that includes both ecological, social science/TEK and political science components as these elements influence each other.

Semi-Structured Interviews

Interviews were conducted by asking known weavers and cultural practitioners and public land agency staff as well as their personal recommendations for other knowledgeable potential interviewees. In total, fourteen interviews were conducted, with additional participant observations noted from informal and formal meetings. I conducted semi-formal interviews at council meetings, private residences, public spaces and via

telephone about their knowledge of plants, the plants they gather, and their frequency of harvest. Interviewing weavers associated with the California Indian Basketweavers Association (CIBA) and the Indigenous Peoples Burn Network/Cultural Fire Management Council about their knowledge of the specific qualities of tule and other basketry plants and how to best manage them to produce good weaving material facilitated a better understanding of the characteristics necessary for quality material.

I surveyed their assessment of tule quality for basketry and other cultural purposes (treatments vs. control), as well as their feelings of whether adequate consultation exists in managing basketry plants, attitudes toward stewardship, and whether they believe cultural transmission is occurring and how it could be enhanced. The abundance and basketry quality of tule that had been treated by burning, cutting and gathering, and cut, gather and burn, was compared to untreated (control) samples of tule by elders/weavers, some who were shown photos and tule samples of burned and non-burned tule. Semi-structured interviews of weavers also provided insights into tribal values and attitudes toward stewarding the land, assisting in determining appropriate management for tule basketry and other cultural purposes. Interviews of public land agency staff and managers were conducted to assess differing policies and to gain their perspectives of whether TEK and management for traditional cultural uses are included in ecological restoration.

Transcription of the interview into a written document immediately followed interviews. Key themes emerged before and after integrating all interviews into one document. Data from these methods will contribute to the NPS objectives in identifying proper cultural management for tule basketry, thus strengthening living cultures.

Archival Research Methods:

Ethnographic, archival data, tribal dictionaries, published sources, and TEK associated with Indigenous burning and management of riparian and marsh habitats were searched within the Yosemite National Park archives located in El Portal, CA and within the Mariposa Museum archives. Digital archives were also searched online. In the Yosemite Indian Cultural Museum, Mariposa Museum and History Center and the Phoebe A. Hearst Museum of Anthropology in Berkeley, CA archeological and archival documents were also searched.

Evaluating Tule Ecological Management at Colusa National Wildlife Refuge

Three treatments—prescribed burning, cutting and gathering, and cut and gather and then burn against a control were implemented in tule plots at the Colusa National Wildlife Refuge (CNWR) located in the Sacramento Valley. Due to prescribed burn research and burn window limitations at Yosemite National Park (YNP), the ecological field component was conducted at CNWR. The refuge is situated two miles southwest of the town of Colusa and about 70 miles north of Sacramento (Figure 1) and comprises 5,077 acres of wetland, marsh, and riparian habitats that support migratory waterfowl (USFWS 2017).

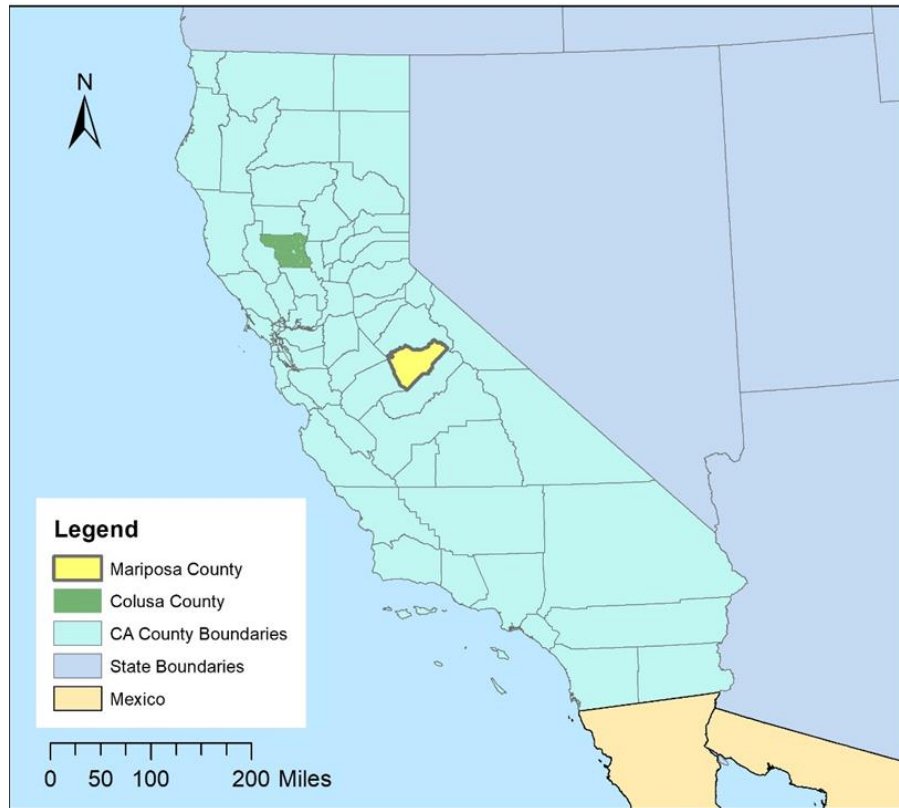


Figure 1. Tule marsh habitat conversion has resulted in the decline of traditional cultural practices. Ecological field studies took place at Colusa National Wildlife Refuge, located in the Sacramento Valley from March 28th-April 30th of 2018. Interviews of cultural practitioners were mainly based out of Mariposa county, California, USA.

Colusa National Wildlife Refuge (CNWR) conducts annual prescribed burning of tule and other marshland species during the spring for the enhancement of seed and structural nesting purposes for waterfowl. A two-stage sampling design measured pre-and-post treatments comparing emergent tule abundance, tule height, water levels and estimated density of tule in $1/4\text{m}^2$ quadrats. Water depths were recorded as prolonged flooding can affect plant response (Smith and Kadlec 1985; Sloyey et al. 2016).

Due to CNWR management objectives and previous effects, I chose sites in plot locations with similar water level decreases, some with scheduled over-water burns and some without. I laid a grid (Fishnet) in ArcGIS over this section of the refuge and selected random numbers indicating locations of cells in the grid. The assignment of some numbers occurred in areas with no tule in the water ways of the marsh, so plot locations were moved to the nearest tule patch at least four feet from the water way's edge. Plot locations are depicted in Figure 2.

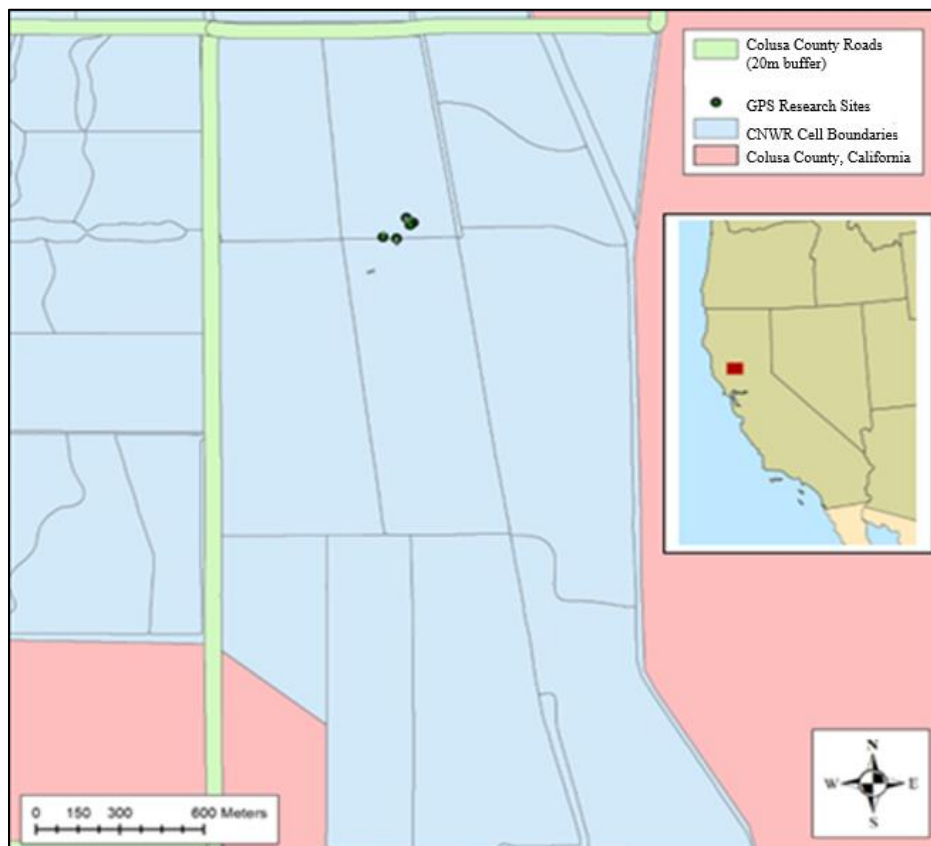


Figure 2: Tule ecological field study plot locations at Colusa National Wildlife Refuge, CA.

To investigate the effects of prescribed burns on tule abundance, spring burns were implemented on March 28, 2018 by burning along the edge of the treatment plots with a flame thrower as directed by USFWS Sacramento NWR Fire Management Program Staff. Treatment types were spaced in close association to maintain similar conditions. See Figure 3 for a map of the approximate locations of the final plots. Data was collected in two plots for the control, two plots for the cut and gather treatment (CUT), two plots for the cut/gather and burn (CUTBURN) treatment, and four plots for the burn (BURN) treatment. The additional two burn plots were added to ensure the data included plots containing successful low severity burns in order to mimic traditional cultural burns which are low intensity and severity burns (Hankins 2013; Goode 2014). During data analysis, the two additional burn treatment plots that burned severe were removed from this study. Treatment names in parentheses were assigned to the data, transferred to a Comma Separated Value (CSV) file in Microsoft Excel and analyzed in R Studio with these titles.

An overwater burn occurred at the refuge March 28, 2019, see (Figure 4). All treatments were dependent upon the CNWR objectives. One hundred pieces of tule cut at the waterline, around two feet and were harvested and wrapped in bundles of fifty from the (CUT) and (CUTBURN) treatment plots.

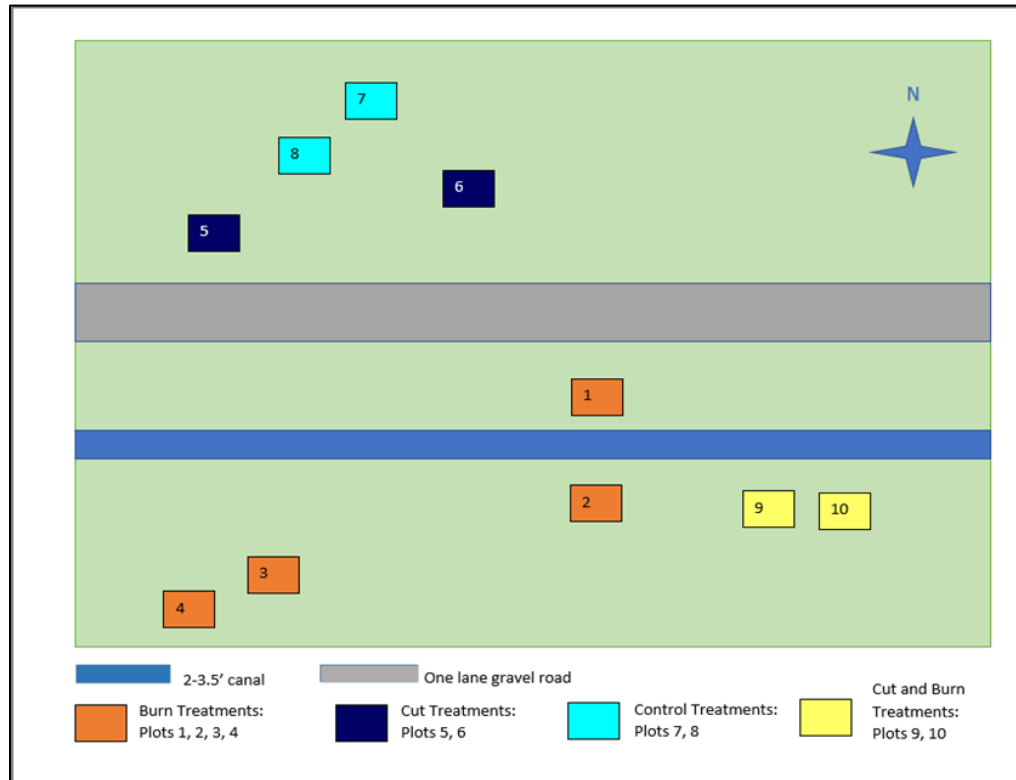


Figure 3: Treatment plots approximate layout in assigned pond (P2C) at Colusa National Wildlife Refuge. Not to scale.



Figure 4. Over-water tule marsh burn at Colusa National Wildlife Refuge on March 28, 2018. The prescribed burns are implemented to improve habitat for nesting birds. Another desired outcome is for quality tule material for cultural purposes.

According to the Natural Resource Conservation Service (NRCS) plant guide for *S. acutus*, plants grow back after one season if no more than $\frac{1}{4}$ of the plants are removed from a 0.4 m^2 area (Tilley, 2012). Treatment plots were 6 x 8 meters. Four transect lines with five $\frac{1}{4}\text{m}^2$ quadrats were placed one meter apart. Transects were spaced at 1.5, 3, 4.5 and 6-meter marks. See Figure 5 for an example of the stratified sampling within each treatment block.

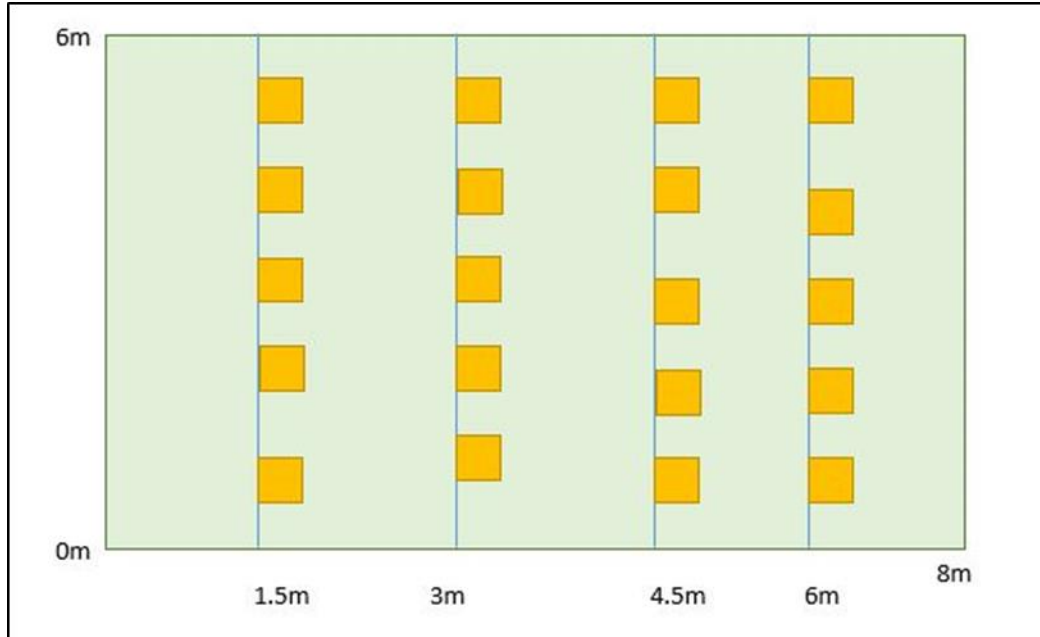


Figure 5. Tule ecological field study treatment sample plot design. Green tule shoots were counted. Height of the tallest tule was measured (cm.), water levels were recorded and estimated density of live and non-living tule about two feet were measured in $1/4\text{m}^2$ transects. Not to scale.

Tule abundance was measured in each quadrat by counting the number of green tule shoots taller than two feet. Water levels were recorded with a metered stick from the ground up. The height of green tule shoots within the quadrat was recorded in centimeters. Figure 6A depicts the counting of green tule shoots in a $1/4\text{m}^2$ quadrat within a post-

burned treatment plot. Tule height was recorded in cm. from the ground up in a treatment plot in Figure 6B.

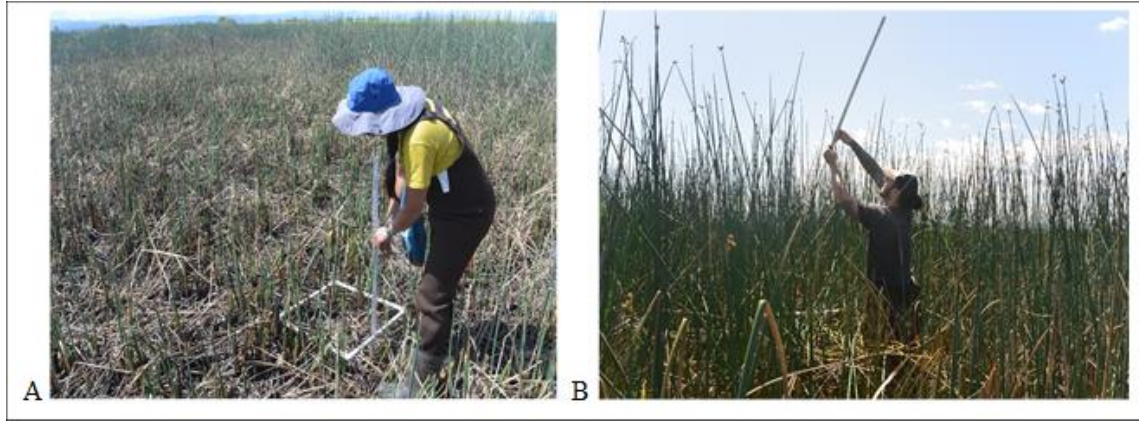


Figure 6. A. Green tule shoot abundance is counted in a post-burn treatment plot. B. Tule height of tallest living tule is measured from the ground up (cm).

Tule density was estimated within the $1/4\text{m}^2$ quadrat along the transect lines with percentages of all tule shoots only estimated above two feet from the ground. See Figure 7 for photos of percent estimated density of living and non-living tule shoots.

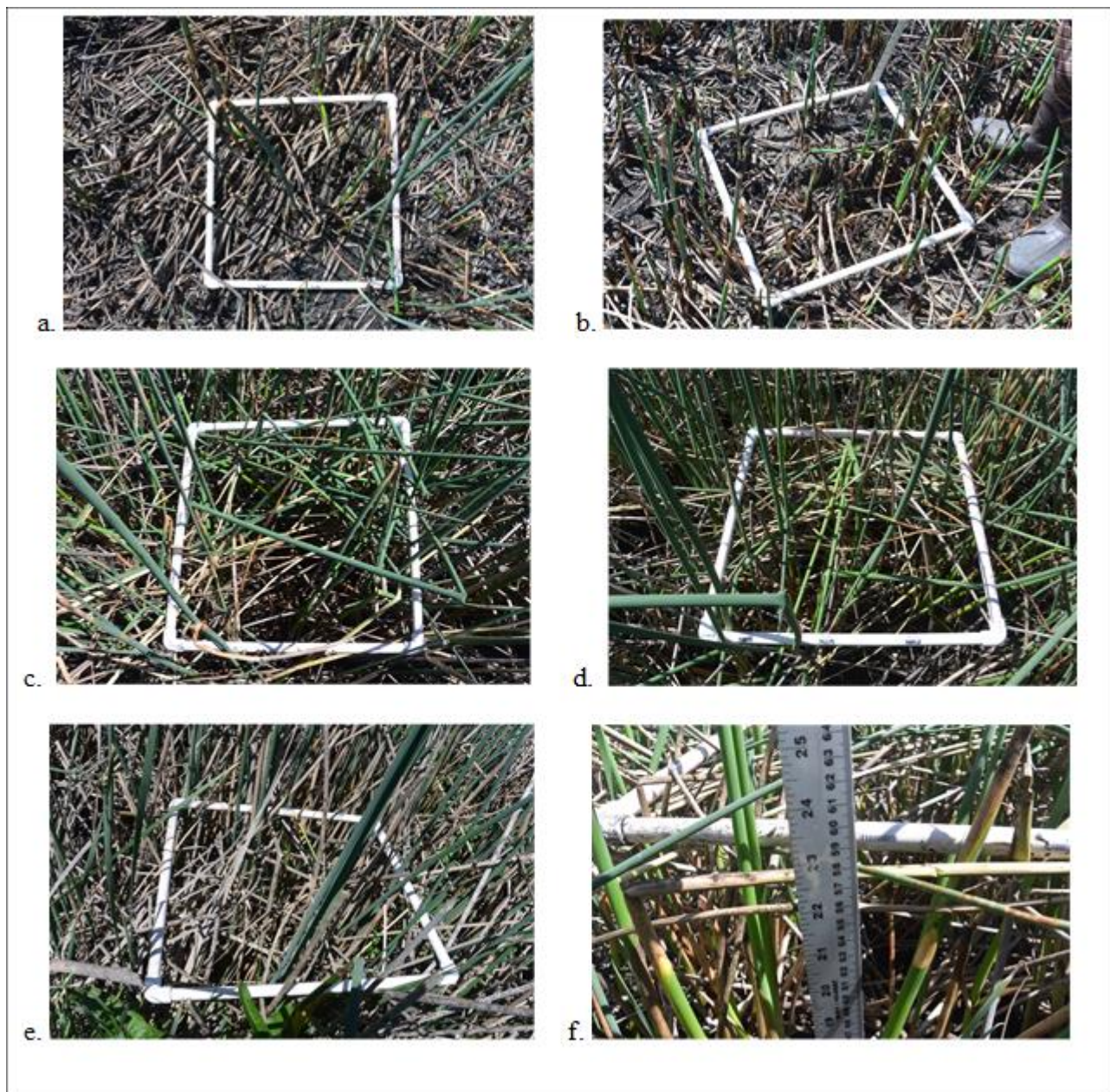


Figure 7. Example photographs depicting estimated tulle density at (a) low (5-10%), (b) low (20-30%), (c) medium (40-60%), (d) high (70-80%) and (e) highest (90-100%), (f) Tulle density estimates were measured at 2 ft. from the ground up.

Statistical methods

Differences in means of abundance of green tule shoots, density, tule height and water levels were analyzed. An Analysis of Variance (ANOVA) test was used to compare treatments for significant differences in abundance of green tule shoots. The presence/absence of rust fungus was not consistently counted as conversations with weavers did not explicitly mention rust fungus or age spots to be an issue. Data was written into a field notebook and then entered into Microsoft Excel. Statistical analysis was done with RStudio versions 1.1.383 and 1.1.456. See Appendix D for the R Code of the full model with the highest adjusted R-squared value for tule abundance.

RESULTS

Interview Results

Interviews with cultural practitioners concerning tule plant management with fire are described first, followed by participants descriptions of quality tule material.

Gatherers observations of managed tule and perspectives of tending are included to show the connection cultural practitioners have with the plants they tend. Cultural practitioners shared their concerns in gathering quality materials and their beliefs about the art of basketry continuing as well as teachings passed down to them. Public land agency staff knowledge of native plants and their management for acknowledged cultural landscapes and cultural purposes are described at the end of the interview results.

Cultural Fire

Interviews and participant observation with weavers and cultural demonstrators showed that there is a desire to manage natural resources for cultural purposes. The knowledge of basketry plant quality improving with fire, specifically cultural fires which tend to be low-intensity and low-severity (Goode 2014) are generally well-known by most weavers. However, one weaver interviewed was wary of tule being burned by fire. Diana Almendariz seemed under the impression that fire could be detrimental to tule, as she had experienced farmers burning tule marshes as a child to clear them for agriculture fields. Her impression seemed to change when shown the picture of the recently burned

tule in Figure 8, a prescribed burn done a few weeks prior. She responded, “This is what you call perfect basket making tule” (D. Almendariz, pers. comm. 2017).



Figure 8. Good tule growth for eco-cultural purposes post-prescribed burn.

The American Indian Religious Freedom Act (AIRFA) passed by Congress in 1978 allows Native Americans to continue ceremonies once forbidden. Within many American Indian traditions, fire is central. Offerings of acorn, tobacco, food, and water are made to the fire in respect and reverence because fire is a sacred element. The president of the Cultural Fire Management Council, Margo Robbins and other cultural practitioners and people who live off the land and burn when permissible, describe the land as being choked, not being able to breathe (M. Robbins pers. comm., 2017). The changing of the seasons and plants’ phenological changes observed by Indigenous people led them to set fire with intentionality (B. Cunningham-Summerfield 2000).

The importance of fire to CA Indians has been downplayed and the return of prescribed fire in Yosemite National Park is often credited to the National Park Service fire

researchers. An interview with Jay Johnson revealed that Native people were instrumental in changing the dominant perspective of fire's essential role in the ecosystem. During the 1970s, Jay Johnson, an elder and spiritual leader of the Southern Sierra Miwuk, worked for the forestry crew for NPS for decades, including projects alongside prominent fire researcher J.W. Van Wagtendonk (Jay Johnson, pers. comm., 2017). The inclusion of Jay Johnson's lived experience growing up in Yosemite and his forestry knowledge and spiritual connection helped him and his crews convince NPS management to let fires burn in designated Wilderness areas and later implement prescribed burns in non-wilderness areas. In 2005, Jay Johnson was asked by NPS to be part of a prescribed fire in a meadow where tule and other native plants grow in Yosemite Valley (Figure 9).

I said yeah, I was the one who started the prescribed burn in the seventies. Me and my crew. That was right down my alley... We're going to start this fire like our people did it a hundred years ago. No modern tools (Jay Johnson, pers. comm., 2017).



Figure 9. Philip Johnson starting a cultural fire with a drill made from elderberry and incense cedar duff/dry grasses "the old way." Photo provided by Jay Johnson.

Another elder, Dr. Julia Parker, when asked about whether tule could benefit from fire said:

It could be burned. All that stuff could be burned; if you have someplace, you know where it's all burned, like over there at Mono Lake (CA), that one section where it was burned, all those willows are strong and straight (Dr. Parker, pers. comm., 2017).

Sara Barton, a weaver, confirmed that Malheur National Wildlife Refuge management of tule with burning increased the quality of the material: “The burn growth that comes with it is so wonderful” (S. Barton, pers. comm., 2017). Cultural practitioners/weavers did not show much concern about the presence of some rust fungus as most believed tule commonly has some “age spots.” However, all the weavers interviewed said nice green shoots are preferable. See (Figure 10 A & B) for a comparison of old brittle tule and a new green tule.

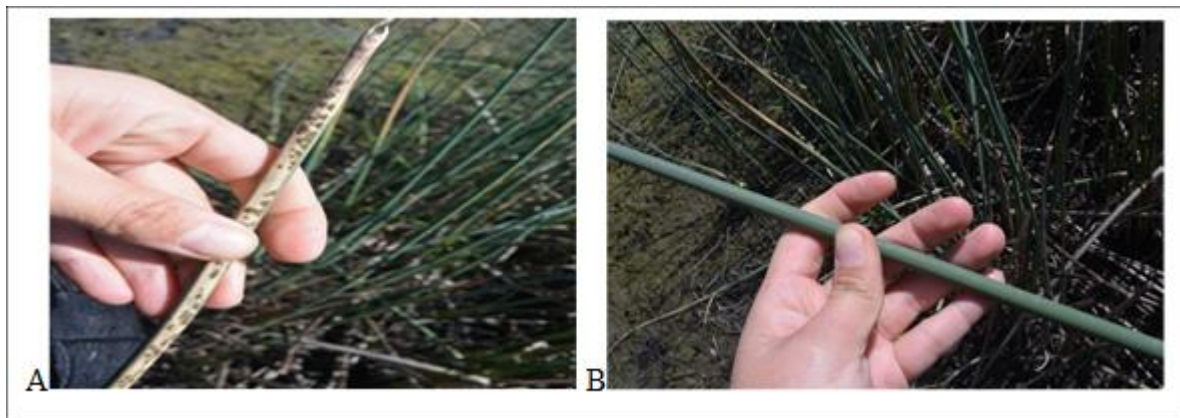


Figure 10.A. Example of an old brittle tule with noticeable “age spots”. B. Straight, green tule perfect for twining/weaving.

Weavers also gather different types and sizes of tule for different purposes. Dolls and small baskets are made from little green tule, whereas heavy mats and larger baskets are made from long green tule shoots (J. Parker, pers. comm., 2017). Tima Link has learned over time that triangular tules are better for houses and boats, while *Schoenoplectus californicus*, the California bulrush, and the round tule, *S. acutus*, are better for baskets. Tima started innovating with tule by using the sizeable triangular tule for weaving smaller baskets by removing the pith and splitting the tule, as the smaller sized tule is usually found on the edge of patches where trash and debris collect (T. Link pers. comm., 2018). Tima and two other weavers also spoke of tule as a traditional food but given the potential of pollutants from agricultural run-off or in waterways near cities are wary of trying it.

Most believe gathering tule benefits the plant by clearing out the old growth, with only a few saying they think their gathering helps but are not entirely sure. Diana's and other gatherer's observation of managed tule patches over time is reflected in the quote "If you're not cutting, the tule decomposes making soil, potentially causing a problem" (D. Almendariz, pers. comm. 2017). Others wholeheartedly agree that clearing the old growth helps the entire ecosystem. D. Almendariz noticed the presence of otter scat and other wildlife signs within her patch of regularly harvested tule. After cutting and gathering every fall and spring for years in the Sacramento Valley, the tule in her tended areas are good. "You cut it; it grows back green" (D. Almendariz, pers. comm., 2017).

Dr. Julia Parker, a Coastal Miwok and Pomo elder, worked as a cultural demonstrator in Yosemite National Park for 68 years retiring in 2015. Her observation of

tule responding to gathering is a definite yes: “Oh yeah, those plants like to be gathered” (Julia Parker pers. comm., 2017). All weavers interviewed do not believe their presence and harvesting of tule can affect the tule in a significantly negative way, as tule grows in great abundance when it can in sites with sufficient water.

The knowledge of tule acting as a water filter was widely known by all cultural practitioners interviewed, and concern for tule (and other plants) in the face of drought and changing conditions are worrisome. Dr. Parker believes the plants know how to take care of themselves but are helped with gathering and cutting for basketry; but with a lack of water, the plant's growth is slowed.

... if there's not [enough] water, then they're not going to grow as long, but if there is a lot of water, then they'll grow twice as long because they get a lot to drink (J. Parker pers. comm., 2017).

Tima Link is a weaver who works predominately with tule but is also trying to adapt to work with other plants after an elder told her, “To learn tule you have to work with it. But if you don't expand your knowledge base, what happens when they are gone?” Tima's observation of tule becoming less available provides insight into the concern of native ecosystems altering due to added pressures of the human environment and the reduction of marshland habitats, concurring with Western science knowledge of changing climates. “Tule keeps shrinking and shrinking...Global warming is pushing us into a place where we have no water; water plants are suffering” (T. Link pers. comm., 2018). Tima also described the difference between cultural weavers' management of tule and private organizations' management of tule.

In southern California, there is a bunch of problems with the tule. First there is not much of it. And second, it is not tended or managed for in ways for weavers to use it (T. Link pers. comm., 2018).

All spoke of differing degrees of accessibility to gather quality material, with the main issues of obtaining permits, amount and age of tule and concern for potential pollutants and herbicide/pesticide residue. Most said obtaining permits was not an issue if people ask nicely and there is some relationship that has been established. Sara Barton gathers alone and with others at the Malheur Refuge in Oregon. A local Burns Oregon Paiute elder, Minerva Soucie, expanded on her first introduction to tule basketry taught to her by Dr. Julia Parker. Sara has never had issues obtaining permission to gather because of her connection to Minerva and other elders, and because she teaches the youth how to make tule egg baskets. See Figure 11 for an example of an egg-basket. She said that she is careful to collect from more than one area at the refuge to avoid taking too much from one place.



Figure 11. Photo and tule egg basket by Sara Barton.

Being intuitive and observant of your surroundings and gathering areas are also important. Dr. Parker recommends going early in the morning when the animals are busy looking for food to avoid them.

When you go out into the tules, you don't know who sleeping in there. I watched the old people when they gather, they have a long stick, and they always shake the bushes. You have to not only think about the plant but who lives in there (J. Parker, pers. comm., 2017).

The teachings of never taking too much, always thinking of the future, and respecting the animals and their homes is common in the interviews and conversations with Indigenous weavers.

Weavers interviewed were sometimes specific in the quantities gathered and other times not willing to give an exact amount as this information is a highly sensitive subject. Tima Link indicated that she usually collects from a five foot square area near the same

place, while Emily Dayhoff said she gathers two bundles of 100 tule shoots per visit. Other weavers said they harvest a handful or armful of tule at a time. All tule weavers indicated that they gather tule when it is green, usually in July or August after the water levels have receded, but this timing is different depending upon location.

The amount gathered depends on the intended purpose. Some weavers and cultural practitioners are also more active in teaching, demonstrations, or in making baskets, mats, and duck decoys for personal use and enjoyment. For semi-subterranean tule structures or three to four large mats, a number Diana Almendariz makes when demonstrating, she requires 40 huge bundles, which after drying in the sun are not heavy to carry. Repurposing tule, never wasting material, is of utmost importance to weavers. None of the weavers interviewed sell material, but some have given tule away to help others get started, and some have bought other basketry materials at different gatherings. Pliable green tule is best to gather in July before red age spots occur on tule in August (S. Barton, pers. comm., 2017). Before working with it, tule must be dried for about a week in the sun depending on location and size (D. Almendariz, S. Barton, E. Dayhoff, personal communications 2018). Most weavers use their gathered tule within a few weeks of drying it. Only one weaver mentioned tule preservation for use outside the current season by blanching. Much like sweetgrass, boiling water is poured through a PVC pipe with the tule inside, preserving it for up to three years (S Barton, pers. comm. 2017).

The appearance of rust fungus (*Pucciniales*), commonly known to reduce a plant's vigor and flower production (Hooker 1967) is mentioned in the literature by Anderson

(2005, p 206). However, the explicit quality of rust-free tule was not mentioned by interviewees. Perhaps this is due to preference by weavers to select straight green shoots or the perceived notion that tule commonly has rust fungus. It was observed that in recently burned patches, the presence of rust fungus was much reduced in comparison to non-burned, highly dense tule.

The belief that plants are like people, “plant people” (J. Parker, pers. comm. 2017), helps explain the relationship weavers have with plants, whom are ascribed a sort of personhood and the view that the most crucial part of a basket is its start, was commonly stated during interviews and conversations. Soaking the plants in lukewarm water was even mentioned to not shock the plants (E. Dayhoff, pers. comm. 2018). The teachers that came before took care of the places they gathered, much like a gardener. This knowledge of gathering locations is special. Julia teaches her family to harvest, as she was instructed. Each weaver has their section, teaching people to be mindful of other’s gathering areas, and always asking permission of weavers in other areas.

Teaching those whom are unfamiliar with cultural customs can have repercussions of overharvesting as demonstrated in this quote of a fellow weaver who told Diana about an experience she had, “...one time she told me that she taught a college class and took them out to a site where she gathers...and the next weekend she went out to gather, and all the plants were gone, they ruined it....Don’t ever take them to your spots, don’t tell anybody where your spot’s at.” (D. Almendariz, pers. comm., 2017). The potential complications in teaching others about TEK is that this knowledge can be abused and disrespected, even unknowingly. For American Indian people who depend on

these areas for subsistence and cultural or spiritual purposes, these consequences make it difficult to want to share this knowledge with outsiders.

The lack of understanding of the significance of plants being more than just plants to those unfamiliar with traditionally utilized plants for food, medicines, cultural or ceremonial purposes, and gathering areas is something Emily Dayhoff, a Southern Sierra Miwuk tribal council member and NPS cultural demonstrator has expressed. One elder, William Tucker expressed frustration over a lack of sensitive cultural plants by NPS road crews in Yosemite Valley, haphazardly cutting down (sour berry) near the Wahoga village (W. Tucker, pers. comm., 2017). For many, there is some difficulty involved with belonging to a marginalized community within one's ancestral territory due to a general lack of cultural sensitivity, knowledge or awareness of Indigenous history and continued presence (Bird 1999).

Continuing Traditional Land Management Practices in a Modern World

For tribal members along the California coast with no federal allotment land, it is difficult to gather together, as tribal members are often spread out due to earlier displacement and enslavement by missionaries. Tima, for the most part, taught herself to gather and weave, since the eldest Chumash weaver died in 1913; fortunately, weavers like her are carrying on some of these traditions relying on teachings from other tribes and baskets stored in museums across the country (T. Link, pers. comm., 2017). She and others interviewed stated that younger generations usually have excuses for not weaving, while also acknowledging the difficulties of living in a modern world. S. Barton said out of twenty students taught to make cradle boards with the assistance of a small grant, only

eight finished. Students must make a commitment and be willing to learn all the steps involved including the preparation work; most have other important things to do (S. Barton, pers. comm., 2017). For elders, decreasing mobility adds to the challenges of gathering plants. Schedule restraints, physical limitations and lack of ability to learn from within ones' family line due to historic and present colonizing forces threaten the tradition. All interviewees believe basketry will continue but in a much-reduced way as the quality of materials and weaving skills fade.

Participation in cultural ceremonies, dancing and speaking your intention to the plants is how many weavers including Diana gather basketry plants respectfully.

Singing and dancing are your offering because the spirit sees you. Dancing for the health of everything, offering your strength and healing. In the dances, the dances talk about the duck dance, goose dance, flower dance...Always talk to the plant, tell it what you want to do, your intentions...Knowing your language and speaking out loud, the land responds, so you can get a lot done when you say the plant's name in language, talk to the plants (D. Almendariz, pers. comm., 2017).

TEK is knowing not to overharvest, speaking with intention and giving an offering of prayer, even in dance. Showing respect to the plant by gathering and weaving with a good frame of mind, not when upset or sick, is part of the process of setting an intention before leaving the house. Sara Barton describes the feeling of gathering in relation to her connection to the ancestors. "You have to quiet yourself down. You have basket in your DNA; it's in our memory." (S. Barton, pers. comm., 2017). Emily Dayhoff describes the feeling of gathering,

It's like a connection to something you've been told stories of. It's hard to explain. The plant is making the basket. We're just facilitating what the plant is saying (E. Dayhoff pers. comm., 2018).

Gathering in this manner is a spiritual process by acknowledging the plant's life and thanking them for giving themselves. Other positive effects of gathering and weaving are the health benefits of the physicality involved with the lifestyle (D. Almendariz, pers. comm., 2018).

Public Land Agency Management of Native Plants and Cultural Perspectives

While interviewing the NPS Regional Cultural Liaison Eirik Thorsguard about NPS policies concerning plants utilized by tribes, he informed me about the ruling enacted in 2016: *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes*, a law that aims to allow traditionally associated, Federally Recognized tribes the ability to apply for a permit to gather plants for cultural uses. After reading the regulation, I learned from document that the most common public comment in regard to this new ruling from Federally Recognized tribes was that there was not enough consultation.

The push for this new ruling, E. Thorsguard believes came as a response to the Public Employees for Environmental Responsibility (PEER) concerns of Native Americans gathering for non-traditional commercial purposes, a concern that he believes is unfounded due to the small if any amount of gathering by traditionally associated tribes (E. Thorsguard, pers. comm., 2018). Eirik stated the NPS doesn't really restore plants for cultural or ceremonial use, although some parks have begun restoration of traditional cultural plants on a case by case basis. Yosemite NPS does, however, ask traditionally associated tribes of their concerns about keystone cultural species (E. Thorsguard, pers. comm., 2018).

Traditional Cultural Properties (TCP) recognition is another way NPS manages natural resources for identified historic importance and interpretation (NPS 2019). Currently much TCP recognition is focused on historical, cultural landscapes with a specific colonial/nationalized identity (E. Thorsguard, pers. comm., 2018). Eirik also described the inherent difficulty involved in identifying ethnographic landscapes within a specified period, as different values and baselines are usually centered around European-settler arrival contact. For NPS to restore these areas, it is often challenging to re-create traditional management, which has often not been written down or validated by western science (E. Thorsguard, pers. comm., 2018). Other difficulties involved in the recognition of ethnocultural landscapes are the inherent issues of a difference of beliefs regarding protection of the resource with the dominant western belief of preservation meaning no use, differing with Indigenous concepts of plants and animals (E. Thorsguard, pers. comm., 2018), often having a reciprocal relationship with one's self and tribe (Long et al. 2003).

The importance of cultural or prescribed burns for basketry purposes was also discussed with Mr. Thorsguard. Timing and regulations can make it difficult for fire agencies to coordinate with tribes in the implementation of prescribed burns (E. Thorsguard, pers. comm. 2018). The prescribed burn implemented in the Ahwahnee meadow in Yosemite Valley in 2016 strove for basketry purposes, but the fire was too small and burned too hot (E. Thorsguard, pers. comm. 2018). Eirik has found that there is an interest by fire managers to collaborate with tribes, but many times don't know how to ask (E. Thorsguard, pers. comm., 2018). Another issue is that the availability of specific

native plant requirements for cultural uses lacks documentation. E. Thorsguard reiterated a common issue many western trained scientists have with TEK in the following quote “A lot of traditional management hasn’t been written down, for non-native folks, it’s mystified and not research validated” (E. Thorsgurad, pers. comm., 2018), which can be problematic for marginalized peoples whose cultures, languages and knowledge has been historically discounted.

Sue Dolan is the Washington Office Program Manager of the NPS Park Cultural Landscapes Program. She related the managerial fears of prescribing fire. There are some cases like the prescribed Cerro Grande Fire, commonly known as the Los Alamos fire, that destroyed 400 homes, estimated at costing \$1 billion that make it that much harder for fire managers to take responsibility. Fire managers have to be really motivated to prescribe fire (S. Dolan, pers. comm., 2018). She also acknowledged that after the Yellowstone Fire during the 1980s, changing perspectives on fire management resulted in letting the wilderness burn when feasible. S. Dolan spoke about the active fire management to restore habitat on the San Juan Islands for endangered butterflies and native plant species, but she was unsure of the extent to which the local Indigenous Longkee tribe was involved (S. Dolan, pers. comm., 2018).

In response to whether the designation of an ethnographic landscape can help restore plants for cultural use, E. Thorsguard believes that tribes must be willing to create partnerships and share information to help the public understand the importance of preserving these landscapes and associated cultural properties. He also believes ethnographic cultural landscape recognition nomination procedures can be improved.

Currently, there is not adequate identification of ethnohistoric cultural landscapes (E. Thorsguard, pers. comm., 2018).

Historic buildings and built environments in park units often have a historic designation, but ethnographic landscapes can be more challenging to designate. In Hawaii, native buffalo grass, with the help of traditionally associated Hawaiian families was seeded and planted to restore an ethnocultural landscape that had diminished with the presence of invasive grasses (S. Dolan, pers. comm., 2018; NPS 2008).

Finally, the restoration of an ethnocultural landscape called the Lyons Ranch Historic District at Redwood National Park (RNP) has partnered with the Yurok Tribe Culture Department to compile information of Native American use of the Bald Hills area (Underwood et al. 2003). RNP has since implemented hazardous fuel removal and low intensity burns to retard meadow succession as Native Americans had historically managed this area (S. Dolan, E. Thorsguard, pers. comms., 2018).

To date only a few examples of ethnocultural landscape recognition has led to involvement of traditionally associated tribes working alongside NPS to restore native plants for cultural use. S. Dolan stated that once an ethno-cultural landscape is recognized, the NPS can manage natural resources with the perspective that doing so benefits the interpretation of the park as well as the cultural resources. People are beginning to understand that it doesn't have to be a win-loss for natural vs. cultural, but it can be a mutually beneficial relationship. (S. Dolan, pers. comm., 2018).

I had the pleasure to interview Merv George Jr., the first Indigenous supervisor of the Six Rivers National Forest. His place-based knowledge has allowed him to

understand the issues within and surrounding the forest. For 100 years, land and timber have been viewed only as a commodity and as a result have suffered mismanagement by the US Forest Service (USFS) (M. George Jr., pers. comm., 2017). His perspective of “Wilderness areas” not always being devoid of humans is an asset when working with traditionally associated tribes. “The title of Wilderness has been a great social injustice to Native American people” (Merv George Jr., pers. comm., 2017). This designation of “Wilderness” and lack of active management near a sacred site threatened by decades of fire exclusion were some of the reasons he first applied to USFS. He spoke of the inclusion of Traditional Ecological Knowledge (TEK) discussion during the late 1980s-90s with the Endangered Species Act and saw the beginnings of TEK implementation since 2014 or so as public lands managers and firefighters have become more comfortable with elders and weavers on fire lines in teaching about the qualities of habitats and plant material sought as well as cultural fire knowledge. He and other Indigenous scholars (Striplen 2018) believe there is no traditional knowledge associated with the types of wildfires we are seeing today because current fuel levels did not exist historically due to active ignition by Native Americans. His understanding of past forestry management is summed up in this statement “You can protect something to death” (M. George Jr. pers. comm., 2017). His acknowledgment of fire’s critical ecological role continues to motivate him to prescribe fire in forests areas that historically had shorter fire return intervals (M. George Jr., pers. Comm., 2017).

Regulatory findings

In 2016, the *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes* ruling was enacted (Federal Register 2016). The final ruling limits gathering of plants for cultural use to Federally Recognized tribes whose ancestral lands are now within National Parks. While this adds further bureaucratic obstacles to these tribes, it makes gathering completely illegal for non-federally acknowledged tribes, resulting in citations for tribal members born in the old Indian village in Yosemite Valley. The new regulation requires Federally Recognized tribes to initiate a request demonstrating its association with the park to the superintendent, which may then be directed to the regional director. The requesting tribe must describe how they identified gatherers and specify which plants or plant parts they wish to gather, the locations, timing, and processes involved in collecting (Joeckel 2018). The Federally Recognized tribes and the NPS must then conduct an Environmental Assessment with a Finding of No Significant Impact (FONSI) within the National Environmental Policy Act (NEPA); a federal act with no explicit mention of consultation with tribes (E. Thorsguard, pers. comm., 2018; FHWA 2018). The National Historic Preservation Act, however, requires consultation with tribes (NHPA) as cited in the Code of Federal Regulations: 36 CFR 800.2(c). There are no federal funds appointed for this process. However, NPS superintendents can use discretionary funds from non-profit partners for such projects.

Fewer interviews were conducted of National Park Service and public land agency staff mostly due to time constraints and the sensitivity of this topic. On October 10, 2018, I participated in the Annual All Tribes meeting in Lee Vining, CA. This meeting allows for tribes traditionally associated with the park to come together to discuss projects and issues occurring in tribal communities. The discussion of the *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes* was mentioned by an associated tribal member who spoke of the difficulty of gathering material. Hearing “The last thing we want to do is stop gathering.” from the current Superintendent Mike Reynolds is reassuring given the circumstances of the new rule.

The United States Forest Service (USFS) and the Bureau of Land Management (BLM) Traditional Gathering Policies allow for free use without permits granted at the local level for personal, community and other non-commercial purposes. The obligation to maintain a government to government relationship occurs between these agencies and Federally Recognized Tribes. Much like the NPS, these agencies can choose whether to confer with non-Federally recognized tribes.

The NPS Organic Act was written in 1916 with a set of values predicated on the myth of pure nature as free from human influence (E. Thorsgard, pers. comm., 2018), allowing for very limited consumptive use, no more than a handful of natural resources (NPS 2006). Unfortunately, more than a handful is required to make most baskets, tule mats, and cradles which need at least two hundred straight shoots. The NPS Organic Act is prohibitive to the continuation of basketry and is not successfully meeting its mandate

in conserving natural and cultural resources unimpaired for future generations. Within the employee culture, I know many non-Native people have collected more than a handful of plants and mushrooms for consumption. NPS ignores the rule when it applies to their employees while creating additional bureaucratic obstacles for traditionally associated tribes to continue subsistence use and denying Indigenous land management practices.

Archival Results

To the public, archives often seem inaccessible (Kallenbach 2009). For many Native American researchers, there is also an emotional burden involved in reading about one's family and ancestors at a time when American Indians had little if any rights. There are museum collections that hold hundreds to thousands of baskets, ceremonial dresses, and objects that were sometimes obtained in questionable circumstances. Many American Indians believe baskets are alive and that those held in museums are incarcerated, not being able to fulfill their purpose while sitting in the dark. There is also a feeling that is hard to describe when you are in the presence of these ceremonial objects and baskets. For weavers, the application of pesticides to living plants is troubling due to potential ingestion, so the application of pesticides to baskets locked behind collectors' doors to prevent deterioration seems almost insulting but thinking of future generations ability to access these same baskets helps ease concerns. Chemical exposure is prevented by wearing gloves when touching or gently lifting baskets. Holding a basket immediately makes one think about the origins of the basket and who made it, weavers often look at the start or center of a basket to determine techniques. "How did this basket begin?

Where did you live?” Thinking about their beginnings and who made them often comes with some sadness as most of the old baskets are labeled with nothing but a general region, collected during a time that was very difficult for American Indian people.

Memories of how these baskets were taken or sold for next to nothing have been passed down through generations. Walking out, it does feel as if you’ve visited someone you care about in jail. Relief that they are ok and sad that they are not at home doing better.

Within the Yosemite National Park archives, I searched for anything related to Native Americans ethnohistory, fire, and traditional management of plants used for basketry.

Research by Craig Bates concerning tule basketry indicated Yosemite Indians did not utilize tule as proficiently as other tribes in California, although Mono Lake Paiute weavers probably influenced the use of tule in the valley in the early 1900s. Barrett and Gifford (1933) also state the Miwok Indians utilized tule.

The Phoebe A. Hearst Museum of Anthropology in Berkeley, California contains tule mat, baskets, cradles, a duck decoy, basket with clay balls and sling to hunt ducks from California Indigenous cultures (Figure 12). Visible signs of rust fungus were few on any of the tule objects or collected and wrapped tule. The cradle in Figure 12b showed no signs of rust fungus.



Figure 12. Courtesy of the Phoebe A. Hearst Museum of Anthropology and the Regents of the University of California, photography by Irene A. Vasquez (a, b, d). (a)Chukchansi tobacco basket (Catalog no. 2-48771), (b) Yokut tule cradle (Catalog no. 1-21015), (c) Tule cane bundle (Catalog no. 2-48771), (d) Northern Paiute Great Basin Paiute duck decoy (Catalog no. 1-41966), (e) South Eastern Pomo baked clay objects and basket (Catalog no. 1-10604), (f) Santa Rosa Rancheria tule cradle mat (Catalog no. 1-0731).

Much of the archival research concerning the ethnohistoric management of plants by Yosemite Indians was found in the Yosemite National Park archives in El Portal, CA. Craig Bates' research documents concern by weavers in the necessary application of fire of certain species; however not specifically including tule. The following articles give an insight into the earliest management and perspectives of European settlers in Yosemite concerning fire and Indian practices.

Mariposa Gazette, October 7, 1870, pg. 2, col. 1

Fire in the Pineries

Some Indians one day last week carelessly dropped some matches in the dry grass at the head of the meadow on Clark and Moore's ranch, which, igniting from rays of the sun, ...Galen Clark, and others, had to work hard for four days, clearing away the grass and loose brush and otherwise battle the fiery element in order to keep it out of the Mariposa Grove of Trees. It failed to reach the Grove, but turned over a large tract of land outside of it.

Ideas about Native Americans belonging to inferior race are evident in the previous quote which describe Indian use of fire as something that is not purposeful, or direct. Fire exclusion in the Mariposa Grove of Big Trees occurred for over one-hundred years. Had Indigenous people been allowed to continue lighting fires there could very possibly be more Giant Sequoias (*Sequoiadendron giganteum*), which require smoke and fire to open their serotinous cones.

Town and County Matters

August 20, 1869

The Yo Semite Valley – Another Claim Raised Against It.

This season there will be a larger quantity of black oak acorns in the Yo Semite Valley than ever before known in one season. It is the custom with the Indians to commence gathering them for food very early in the Fall by cutting off the branches of the trees before the acorns are ripe enough to fall. While on a recent trip to the Valley, Mr. Galen Clark, one of the Commissioners and Guardian of the Valley, had a talk with the Indians living there, requesting them not to cut off the branches of the trees, but wait until the acorns fell off and then gather them.

They replied that he had never paid them for their acorn trees nor the Valley, neither had anyone else paid them. If the State “officials,” or the American people would pay them for the Valley, they would not cut the trees, but until they were paid they had a right to cut them if they wished to. The Guardian explained to them that it would be better for them not to injure the trees by cutting them even if they had never been paid. But they failed to understand why it was right for the Americans to cut down and destroy large numbers of their best acorn trees in making ranches throughout the country, and that it should be so very wrong for them to cut down a few branches to gather acorns from trees which they had never been paid for.

A summary by Stewart (2002) of fifteen archival sources is provided in *Forgotten Fires*, pages 287-291 relating to the management of Yosemite Valley by Indians with the use of fire. Bunnell, a member of the Mariposa Battalion, a state sponsored militia made up mostly of miners, wrote in an unpublished article for *Century Magazine* about Yosemite Valley having very little undergrowth in the park-like valley. And that only a half day’s work in lopping off branches along course allowed for riding on horseback at full speed through the groves.

Galen Clark, famously called Yosemite’s first Guardian wrote a letter comparing Yosemite Valley’s abundance of luxuriant native grasses and flowering plants being at least four times greater in 1855 than in 1894.

The Valley had then been exclusively under the care and the management of the Indians, probably for many centuries. Their policy of management for their own protection and self-interests, as told by some of the survivors who were boys when the Valley first visited by Whites in 1851, was to annually start fires in the dry season of the year and let them spread over the whole Valley to kill young trees just sprouted and keep the forest groves open and clear of all underbrush, so as to have no obscure thickets for a hiding place, or an ambush for any invading hostile foes, and to have clear grounds for hunting and gathering acorn. When the forest did not thoroughly burn over the moist meadows, all the young willows and cottonwoods were pulled up by hand.

Stewart (2002) archival research cites Rector of St. Paul's Episcopal Church at San Rafael, William H. Stoy letter to Secretary of the Interior Dec.10, 1890:

I visited the valley again...a lapse of twenty-four years since I had first seen it. The contrast between things then and now is something remarkable...another thing that struck me forcibly in the contrast with 1866 was the immense increase of trees and small undergrowth everywhere visible in the valley...while the majestic Giant Trees of primeval growth seemed to be as numerous as in former days. The valley, as I saw it in 1866, was more in the condition that the aborigines had left it...In consequence, also of the openness then existing, much better views existed of the waterfalls and cliffs, from the floor of the valley, in any direction.

Many European settlers, miners, foresters and cattlemen whose names now fill the landscapes of public lands wrote of the condition of the valley before their settlement of the park and its establishment including H.J. Ostrander. His quote published in the San Francisco Call, Dec. 22, 1895 discussed the appearance of the valley and was included in the article concerning the use fire to clear brush. Ironically this article also argued for removing fire's destructive force from the Big Trees in the Mariposa Grove to protect them. Many foresters recognized the role Indigenous people had with fire specifically in the Sierra's but still contradicted themselves in the defense of protecting trees usually for timber.

At that time in the graceful bends nestled beautiful meadows. Outside of the meadows noble pines, Douglas Firs, and cedar dotted the valley. No underbrush, cottonwood nor second growth pines and fir to obstruct the view of the marvelous walls of the valley (H.J. Ostrander 1895).

Within this same article the use of fire by Indigenous women was cited by Joaquin Miller, a poet and author of *Songs of The Sierras* in a paper read to Congress in 1887. This use of fire as directed by women points to the importance of fire for basketry purposes.

It was my fate to spend my boyhood among the Indians. They were the only foresters I ever knew. In the spring, after the leaves and grasses had served their time and season in holding back the floods and warming and nourishing the earth, then would the old squaws begin to look about for little dry spots of head land of sunny valley, and as fast as dry spots appeared they would be burned. In this way the fire was always under control. In this way the fire was always the servant, never the master. And by the time the floods came again then there was another coat of grass and leaves, stronger and better than the one before because of the temperate use of fire by the careful and wise old women. By this means the Indians always kept their forests open, pure and fruitful and conflagrations were unknown (Miller 1887).

James M. Hutchings, one of the first settlers in the valley and whose lawsuits led to the establishment of the Yosemite Land Grant would lose his land claim with a settlement that made him wealthy, wrote in a report to the State Commission in 1881 about the dense growth of underbrush (Runte 1993).

As cited by Stewart (2002) in a memoir published by A Special Commissioner Willis H. Baxley wrote of his observation of Indians setting fires in Yosemite Valley in his book published in 1865.

A fire-glow in the distance, and then the wavy line of burning grass, gave notice that the Indians were in the valley clearing the ground, the more readily to obtain their winter supply of acorns and wild sweet potatoe root- "huckhau (Baxley 1865).

Galen Clark (1904) also wrote in his book *Indians of the Yosemite Valley and Vicinity: Their History, Customs and Traditions* (p. 24) about the efficient use of fire by the Indians in relaying messages. M.C. Briggs (Dec.18, 1882) secretary of the Board of Commissioners to manage Yosemite Valley and the Mariposa Big Trees Grove writes in the Biennial Report the degree of underbrush and second growth pines that have occurred since the establishment of the grant.

In our brief report of 1880, we called attention to the rapidly increasing breadth of underbrush and second growth pines, and need not restate our convictions with respect to the importance of counter-working this spreading infestation. While the Indians held possession, the annual fires kept the whole floor of the valley free from underbrush, leaving only the majestic oaks and pines to adorn the most beautiful of parks. In this one respect protection has worked destruction (Briggs 1882).

Bunnell, a member of the Mariposa Battalion wrote about the large baskets left in the dwellings of the Indigenous people from Yosemite years after he had participated in burning their homes and food caches “These baskets were quite numerous, and were of various patterns and for different uses. The large ones were made either of bark, roots of the Tamarach or Cedar, Willow, or Tule” (Bunnell 1892).

Finally, Totuya, (Foaming Water) later called Maria Lebrado Yrdte in 1929, granddaughter of Chief Tenaya, who was around ten or twelve when Bunnell and the Mariposa Battalion raided her home was interviewed by H.J Taylor in 1929 about her life and her homeland, remarking that the valley was “Too dirty; too much bushy” (Johnson 2014).

Creation stories about how fire came to be vary by tribe but one story printed in the Mariposa Gazette, Volume LVI, Number 51, 13 May 1911 tells of a bird council searching for fire after the fire of the world was almost extinguished. Many birds tried including the eagle, Clark’s nutcracker, and raven until the sparrow spotted it in a tree. None of the birds could retrieve the fire so turkey volunteered to fan it. The heat from the fire scorched the feathers on his head causing the blisters we see today.

Barrett and Gifford (1933) recorded a similar creation story and documented the use of fire by in Yosemite to enhance the growth of grasses the following year and to remove dry brush at the end of summer by Southern Sierra Miwok informants.

Within the Yosemite Library, Ben Cunningham-Summerfield's research states the use of fire by American Indians' is lit with reverence and respect. He also includes the observation of Tompkins sedge (*Carex tompkinsii*), a rare, native plant found in the Merced, Kings Canyon and other Sierra Nevada river canyons as increasing profusely after the Ackerson Complex fire in 1996 (Cunningham-Summerfield 2000).

Ecology/Tule Field Study Results

Statistical analysis confirmed field observations in the mean changes of new tule growth post-treatments. The mean change in abundance of green tule shoots is depicted in Figure 13. From this simple chart, the CutBurn treatment appears to have slightly more effect on the post abundance of tule. However, ANOVA results indicate the Burn treatment is the most significant determinant of new tule shoots across multiple models with a significant p-value of 1.061e-14.

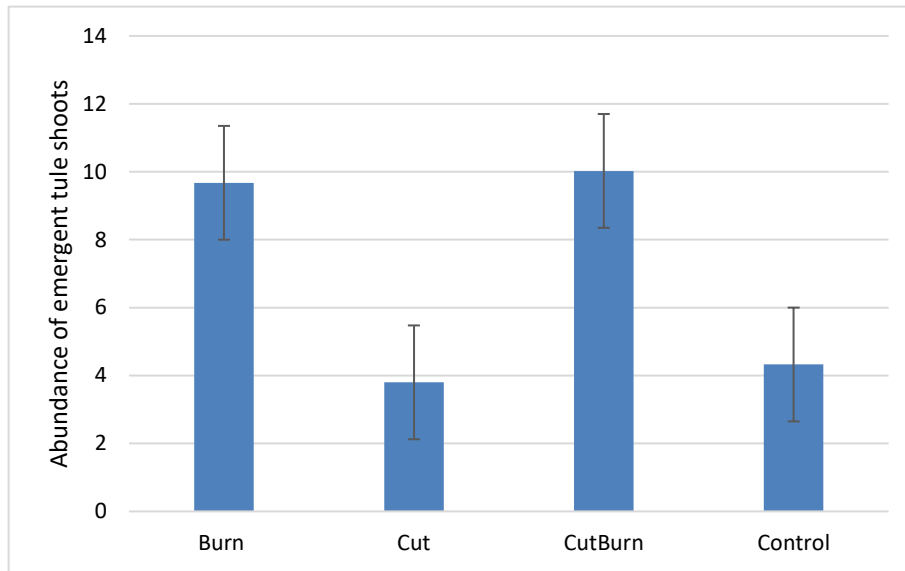


Figure 13. Mean change in tulle abundance (i.e., number of tulle shoots taller than 2 ft.) after specified treatment, (Burn), (Cut/Gather), (Cut, Gather and Burn) and the (Control).

The pre- and post-treatment plot means and standard deviations (sd) among the (B) Burn, (C) Cut, (CB) CutBurn, and (N) Control for tulle water levels (in.), abundance of tulle shoots, tulle density estimates (%), and tulle height (cm) are located in Figure 13. All plots received a similar decrease in water level after the first treatment. A two-sided t-test determined whether there were significant differences between pre- and post-treatment data collection for the same treatment category. All treatment groups showed significant differences for tulle abundance, density estimates, and tulle height indicated by low p-values (Table 1).

Table 1. Means and standard deviations (sd) for pre and post treatments (B) Burn, (C) Cut, (CB) CutBurn, (N) Control, no treatment, the control for the following tule abundance, density estimates (%), tule height (cm). The p-value depicts significant differences between the pre and post data collections for the same treatment category. Significant p-values are in bold ($\alpha=0.05$).

Tule Abundance	Pre (Mean) \pm sd.	Post (Mean) \pm sd.	T-test p-value
Burn	8.750 \pm 3.18	18.43 \pm 4.12	1.061e-14
Cut	11.30 \pm 3.22	15.10 \pm 4.10	0.000135065
CutBurn	11.28 \pm 3.52	21.30 \pm 6.80	1.95675e-10
Control	11.23 \pm 3.26	15.55 \pm 3.33	8.19054e-09
Tule Density Estimates	Pre (Mean) \pm sd.	Post (Mean) \pm sd.	T-test p-value
Burn	0.44 \pm .25	0.58 \pm .14	8.68415e-06
Cut	0.70 \pm .17	0.79 \pm .12	0.00213024
CutBurn	0.31 \pm .13	0.40 \pm .18	0.0103349
Control	0.67 \pm .22	0.77 \pm .10	0.00152963
Tule Height (cm)	Pre (Mean) \pm sd.	Post (Mean) \pm sd.	T-test p-value
Burn	118 \pm 21	188 \pm 61	2.28163e-10
Cut	160 \pm 15	246 \pm 19	2.61759e-24
CutBurn	134 \pm 11	228 \pm 14.5	3.10192e-30
Control	163 \pm 11.5	243 \pm 17	1.00895e-26

ANOVA Results

Analysis of Variance results provide a statistical result to the most significant treatment for emergent tule shoot abundance. Boxplots of green tule shoot abundance in (Figure 14) depicts pre- and post-treatment distribution of green tule abundance data. The Burn treatment exhibited the largest increase in tule abundance post-treatment. The CUTBURN treatment was also a significant influence on post-treatment tule abundance. The Analysis of Variance (ANOVA) one-way model determined which treatment factors had the most significant influence on the post-treatment abundance of green tule shoots relative to the initial tule abundance, water levels, and density estimates. The Burn treatment had the most significant p-value of $6.55e-12$. The overall model's adjusted R-squared value was 0.2156, meaning that only 22% of the variability of the data was explained by this model. The F-statistic was 8.283 on 6 and 153 degrees of freedom. The overall p-value of $8.934e-08$ indicates that not all the treatment's means are equal. Residual plots show the data meeting ANOVA assumptions of normality and homogeneity of variance (HOV).

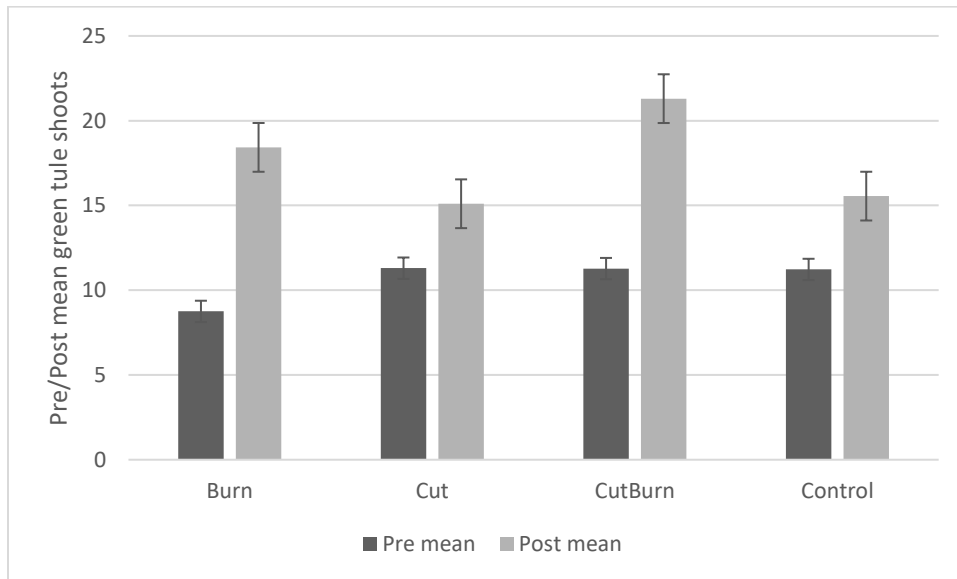


Figure 14. Pre- and post-treatment abundance of green tule shoots for each treatment. Pre-treatment, the burn plots had less tule shoots than other research plots. Post-treatment the (Burn) and (Cut/Gather and Burn) treatments had greater increases in tule shoots useful for twining and other cultural uses.

The residuals of the data were plotted against a fitted line to show homogeneity of variance and normality assumptions with the post-tule abundance data corresponding to the initial abundance, water levels and density estimates of tule (Figure 14). The CutBurn treatment plots residuals are greater than the other treatments residuals. Clumping of partial residuals in the pre-water level graph for all treatment plots indicate a lack of homogeneity of variance in Figure 15.

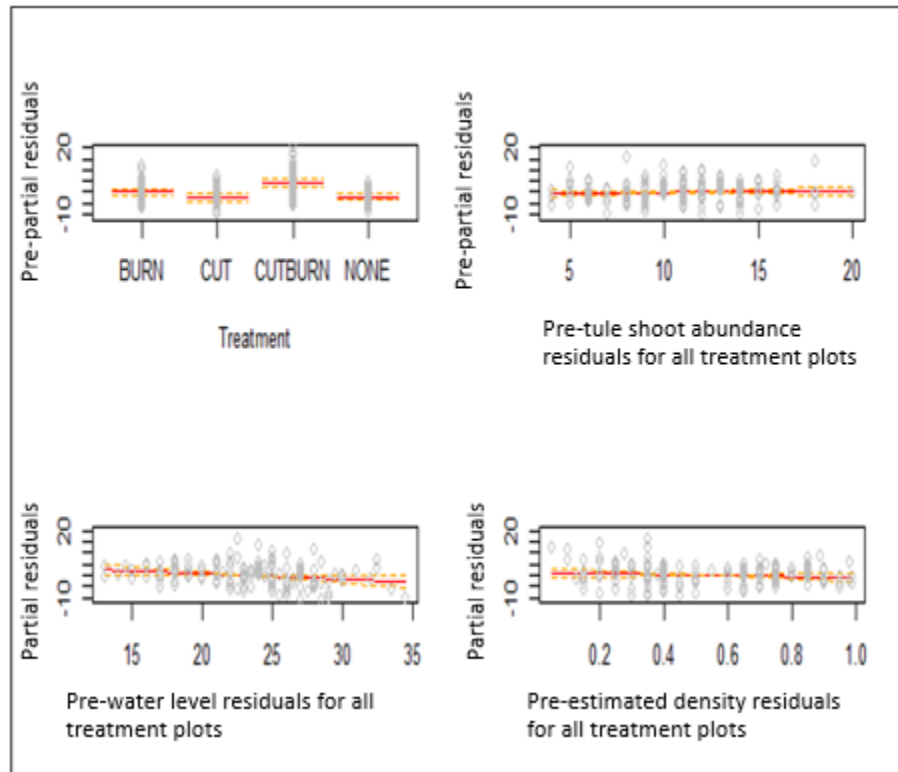


Figure 15. Residual plots for different measured variables in the sample data corresponding to pre-treatment measurements of tule abundance, water levels, estimated density (%) between research plots.

To check for constant variance in the tule data collected, a Levene's Test was run. The CUTBURN treatment resulted in unequal variance among treatments. However, since the sample sizes were equal, this slight difference between treatment groups is less significant. Figure 16 shows the water level means among treatment plots before and after treatments.

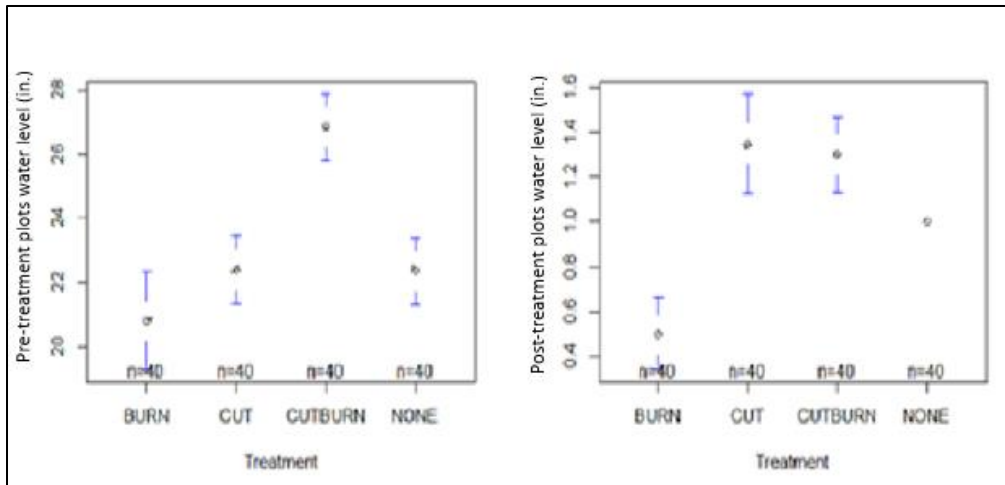


Figure 16. Pre- and post-treatment research plot means of water level (in.). CutBurn plots initially had a few inches more water than the other research plots. Post-treatment water levels were more similar within ~1.5 inches.

Water levels in the plots were initially similar, differing by a few inches for most treatment plots. Post-treatment plots had less difference in mean water level. The pre-CutBurn treatment plots (9 and 10) water level mean was 27 inches while the lowest mean water level occurred in the pre-Burn treatment plots (2 and 3) as indicated in Table 1.

Quantile summaries for water levels, abundance of tule shoots, density estimates and tule heights among all treatment plots in Table 2 demonstrate the difference in tule measurements before and after treatments.

Table 2. Pre- and Post-treatment quantile plot summaries of water levels, abundance of green tule shoots taller than two ft., estimated tule density and the tallest living tule shoot measured in 1/4m² quadrat along a transect line.

Water Level	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	SD
Pre	13	20	23	23	26	35	4.32
Post	0	1	1	1	1	4	0.60
Abundance of green tule shoots							
Pre	4	8	11	10.64	13	20	3.44
Post	8	14	17	17.59	21	38	5.35
Tule Density Estimated (%)							
Pre	0.05	0.30	0.50	0.53	0.75	0.99	0.25
Post	0.05	0.45	0.70	0.64	0.80	0.95	0.22
Tule Height (cm)							
Pre	76	129	146	144	166	185	23.72
Post	65	221	233	226	248	291	40.68

Another ANOVA model tested the difference in means of treatments and their interaction with other variables on the post-treatment abundance of tule shoots. Included were the treatments' interaction with the initial biomass (density), the initial abundance of tule shoots taller than 2 feet, and the initial water levels. The most significant treatment

effect on the post-treatment abundance of new green tule shoots was the Burn treatment, with a p-value of 0.00104. See Appendix D for the R-Studio output. The Cut treatment and the initial biomass interaction also had a significant effect on the post-treatment abundance of green tule shoots with a p-value of 0.04027.

A posthoc test was run because the initial group means between the treatment groups were variable. Specifically, the burn plots had a lower abundance of tule shoots than the other treatment plots Figure 17. The posthoc test confirmed that there was an initial difference in abundance of tule shoots among the plots, specifically the CutBurn plots. The overall model indicates there is a difference in means of emergent tule shoots with a significant p-value of 2.446×10^{-6} , an F-statistic of 4.169 on 15 and 144 degrees of freedom (DF). The Adjusted R-squared value of 0.2301 indicates that the model explains 23% of the variability of the data.

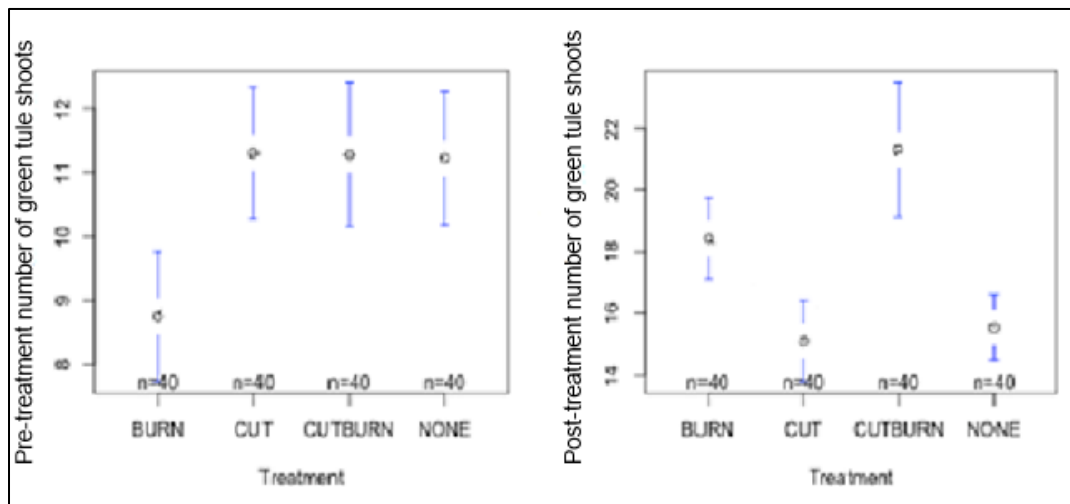


Figure 17. Pre- and post-treatment numbers of green tule shoots taller than 2 (ft.) for all treatment plots.

Other factors may have influenced the change in means among the treatment plots. The initial mean abundance of tule shoots for the burn treatment plots were lower than the other plots. The plot means with the most significant increase in tule abundance post-treatment are the Burn and CutBurn treatments Figure 17. Initial counts of tule in the burn treatments plots were lower than the other treatments (Figure 18). After the treatments, the CutBurn treatment and the Burn treatment appear to have the highest increase in mean abundance of emergent tule shoots. The Cut and the Control treatments only had modest increases in mean green tule abundance.

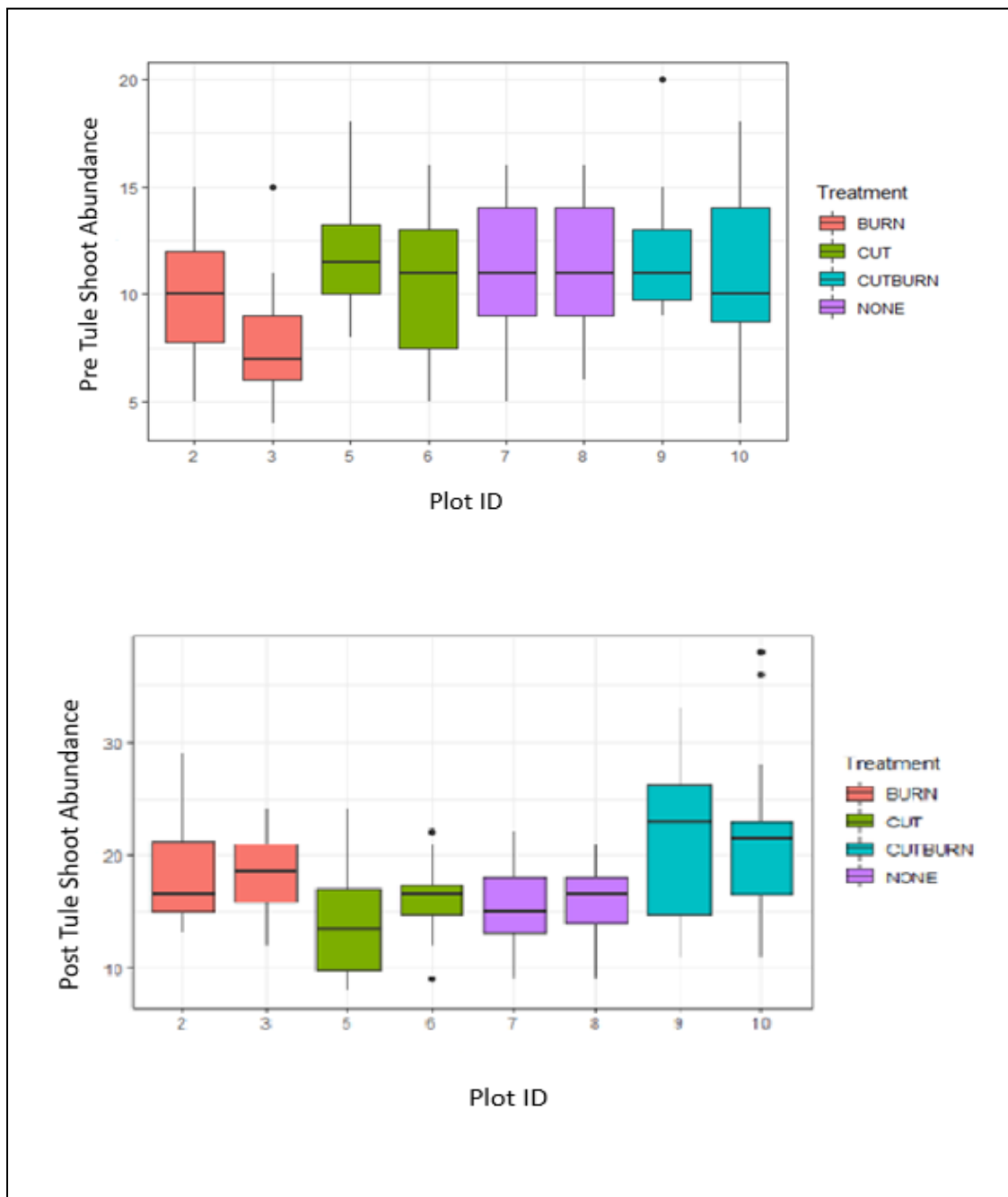


Figure 18. Pre- and post-abundance (number) of green tule shoots for all plots. Burn treatment plots are 2 and 3. Cut/gather plots are 5 and 6. Cut, gather and burn research plots are 7 and 8. Control plots are 9, 10. The BURN and the CUTBURN treatments saw the greatest increase in green tule shoot abundance.

Another ANOVA model tested the relationship between tule height and the interaction between treatments and the other variables was done to provide understanding of which treatment had the greatest effect on tule height and abundance of tule shoots. because many tule weavers indicated they like tall, green tule. The R Studio output is found Appendix D. This model tested whether the type of treatment, initial water level, initial tule height, initial abundance and density or biomass of the treatment plots affected the post tule height. Not surprisingly due to the difference of a month timespan of spring growth, all of the treatments were significantly different, with the burn treatment having the most significant effect on post-treatment tule height with a low p-value of $4.74e-07$. The overall p-value was $2.2e-16$ with an Adjusted R-squared: 0.4437 and an F-statistic: 22.14 on 6 and 153 DF. This model's Adjusted R-squared value indicates 44% of the variability of the data is explained by this model. Boxplots of the tule height data before and after the different treatments is shown below in Figure 19.

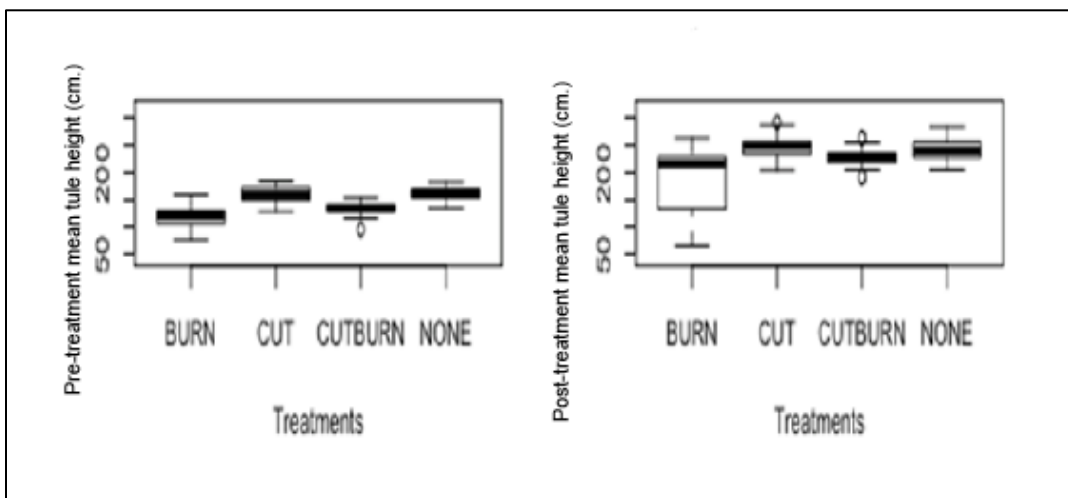


Figure 19. Pre- and post-data for tule height (cm.), measured from the ground upward, depicted in boxplots for each treatment.

The Burn and CutBurn treatments resulted in the greatest mean number of tule shoots after one month during the growing season. Other factors considered were the water levels of the plots, estimated density of tule and the height of tule. The change in means for each treatment's associated data are shown in Table 3. The mean height of tule in the Burn treatment plots was 70 cm, while the CutBurn treatment plots indicate the tallest tule with a mean of 93 cm.

Table 3. Pre- and post-treatment change in means for each measurement, water level, abundance of green shoots, estimated density (%) and tule height (cm.)

	(B) Burn	(C) Cut	(CB) CutBurn	(N) Control
Water Level (in)	20	21	26	21
Abundance	9.7	3.8	10.0	4.3
Estimated Density (%)	0.14	0.08	0.08	0.12
Tule Height (cm)	70 cm	85 cm	93 cm	81

The relationship between density estimates and tule abundance was examined graphically. Greater numbers of tule shoots are associated with less dense tule stands in both the CutBurn and Burn treatments (Figure 20). The initial CutBurn Treatment plots had lower density approximations than the other treatment plots.

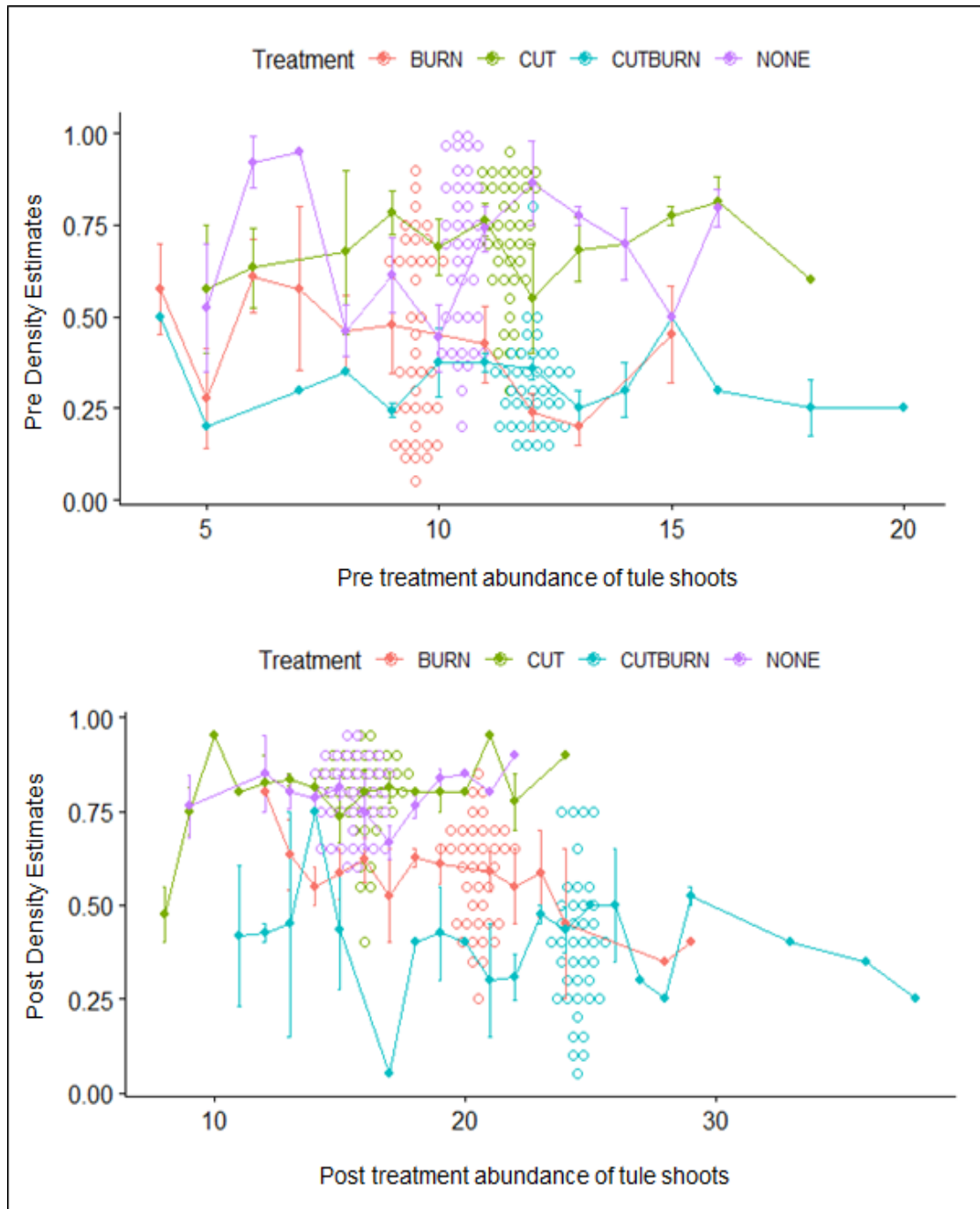


Figure 20. Initial density estimates in the top graph plotted with the pre-treatment abundance of green tule shoots. Post-treatment abundance plotted with post-density estimates in the bottom graph. The CutBurn treatment plots had the lowest initial and post estimated density and greatest abundance (number) of green tule shoots.

DISCUSSION

All treatment groups showed significant differences for tule abundance, density estimates, and tule height indicated by low p-values as all treatment plots experienced significant change in the abundance of emergent tule shoots due to the difference of a month of growth during spring. The magnitude of the change in the abundance of tule shoots in the burn treatment plots was the most significant as determined by the ANOVA model with a low p-value of $1.061\text{e-}14$. The cut and burn treatment plots had a few inches more water than the other plots initially and is probably the main cause for the slight difference.

Weavers insistence on the importance of active tule management, whether by burning or harvesting to create open areas for young, abundant tule useful for basketry and other cultural purposes supports the results from the tule ecological field study that active management of tule improves the quality of this basketry material. Low-intensity burns can encourage new tule growth in a less dense stand as depicted in the ecological field results. CNWR management aims to create less dense stands of tule and cattail for quality waterfowl habitat. By simple observation, it was easy to identify the plots that had burned more severely, as the tule shoots were scorched almost entirely to the ground. In less severe burn areas (plots two and three), the tule burned partially, allowing more space and light for new tule growth.

The results from the tule burn, cut/gather and burn treatments were encouraging, but the span of this research is limited. The study was dependent upon the management

objectives and schedule of the Colusa National Wildlife Refuge. Two months post-treatment, the water levels of the control plots had increased, making the third data collection null. It is possible that the cut and burned plots higher mean water level influenced the emergence of new tule shoots as depicted in Table 3. The cut/gather and burn treatment was not the most significant predictor in the ANOVA table. Previous dredging, burning or flooding may have influenced the results, although plot selection aimed for similar conditions. Future research could investigate the effects of severe versus non-severe burns and the response of waterfowl in those locations. Spending multiple days at the refuge collecting data, I observed by sight and sound more bird activity and more nests in the less dense tule stands. The tule marsh habitat in Colusa and Yosemite Valley are very different. Thus, these quantitative results are not directly transferable with different elevation, weather patterns, and soil conditions.

This research may inspire future incorporation of TEK and tribal perspectives into public land management. Future collaborative research endeavors could also incorporate citizen science from traditionally associated tribal members in the monitoring of tule gathering areas for the presence/absence of birds. Places like CNWR allow people to connect to the natural environment, promoting the importance of conservation through use, whether it be hunting or gathering tule for cultural purposes.

Simulating types of Indigenous practices of tule management has logistical challenges and is often limited by the ideology of western science. Not only was it impossible to create a full-scale simulation, but the methods used are not necessarily akin to traditional practices. I intended to use all the tule I harvested according to gathering

etiquette; there remain about one-hundred extra pieces after making duck decoys and small baskets. In testing the positive effects of cutting and gathering, my field assistant and I could not create an equivalent impact to that of an Indigenous community. For weavers, the insistence of tule and other basketry plants “liking to be touched” and “needing to be cleaned out” for new plant growth speaks to a strong sense of responsibility and stewardship. Perhaps it is both responsibility and observational knowledge of gathering locations over time. Weavers are aware of their gathering effects and shared this with me in conversations and interviews. D. Almendariz intentionally creates a zigzag path to prevent invasive seeds entering the stand where she has gathered for many years. Native science is holistic in its spiritual underpinnings. There is something deeper than creating disturbance for desired effect, something that can never really be measured by western science in the deep-felt responsibility and connection weavers and gardeners experience in caring for plants and their wellbeing (Deur 2009).

The quantitative results as shown in the ANOVA tables support the hypothesis that disturbance increases the emergence of new shoots. The results show that burning has a significant positive effect as depicted in Table 3; new tule growth in the burn treatment plots was twice the amount of the control. The pre and post-treatment controls for tule abundance were also significantly different mostly because the experiment spanned a month during the spring growing season. Further research could look at the effects of different resource management prescriptions over a more extended period.

Tule is resilient to cultural gathering as evidenced by extensive tule use in Indigenous California material culture. People who work with the plant are cognizant of

their responsibility to the plant, the land, creation and future generations. Embedded in the mindset and within the teachings, cultural practitioners gather with purpose, showing gratitude and never wasting material.

Bussey et al. (2015) indicates that multiple, interwoven pathways including deductive, discipline-specific, quantitative means as well as inductive, holistic and qualitative means inform ecological knowledge for tribal and non-tribal natural resource managers. Within Restoration Management Science (RMS) crews at Yosemite NP, we've often utilized intuition and experiential understanding in efforts to restore native species and natural processes. My participation in the Cultural Burn Training Exchange (TREX) on the Yurok reservation in February of 2018 showed the Indigenous Peoples Burn Network (IPBN) using modern science to supplement traditional fire application for quality hazel production for basketry purposes.

The idea of western science supporting Indigenous knowledge with quantifiable results can be problematic. The intrusiveness of ascertaining specific quantities to inform public land management of the perceived impact is demeaning, considering the historic and present dominant western ideologies and institutional forces that continue to erase and ignore Indigenous people. The mining of traditional knowledge by researchers from public land agencies and other institutions to base a limit of taking of traditionally gathered plants is insensitive, especially given their own actions and the actual number of cultural practitioners harvesting plants. Native science can be described as holistic, interrelated and non-quantifiable, although many weavers know the amount of material required for specific projects. Both knowledge systems are based on empirical

observations, but Native science also contains a connection to spirit and a belief in the importance of reciprocity among humans and other beings (Cajete 2000). It is excellent when Western science and Native science support specific goals, but when these differ, where does that leave Native science? Each land management agency has their own policies concerning conservation, but overwhelmingly they lack an appreciation for Indigenous perspectives in relation to the land and creation. Popular thought is changing, but the perpetuation of ignoring Indigenous stewardship continues creating the false ideology that our public lands and Wilderness areas were free of human influence or impact.

The intrusive effects of researchers from public land agencies and other institutions mining traditional knowledge to base a limit of taking of gathered native plants are insensitive to Native Americans, whose traditional knowledge is already scrutinized. Western science and values take precedent over TEK when a limit of take is ultimately decided upon by western science. How does something remain sacred if it must be shared with bureaucrats? Some species and uses are known only to some individuals handed down to them through their ancestral line or in ceremony, making the divulging of such information inappropriate (Bussey et al. 2015). This study aims to help identify specific quantities and quality of tule as sought by cultural practitioners to inform public land agencies, but it is also acknowledged that providing this proof is a burden. Weavers are very secretive about their gathering locations to protect the locations, and because of the many different federal and state legislations concerning the gathering.

Many weavers have had to gather with discretion because of the belief held by many non-native people that any human influence is detrimental to the resource.

Archival research provides further insight to forest management with fire by American Indians pre-fire-suppression. Joaquin Miller's statement about the use of fire as directed by Indigenous women points to the importance of fire as a land management tool for enhancing basketry material as women were the predominant weavers. Interpretation rangers and natural resource managers should make use of this type of archival evidence in the education and management of public lands. Leaving out the entire truth affects the perception of Indigenous presence and influence over landscapes.

Concern for archeological cultural resources is a sensitive issue as many of my relatives are often worried about construction or restoration projects impacting archeological sites. This concern is not unfounded, as many elders grew up with no say as to how our ancestors' bones and cultural resources were treated until 1990. The enactment of the Native American Graves Protection and Repatriation Act (NAGPRA) changed this, however federal and non-federal agencies and looters continue displacing or developing over ancestral graves and sensitive cultural areas. The inclusion of cultural monitors has helped reduce these fears. However, one can search the internet for archeological artifacts; public awareness of projects in these sites can potentially have an adverse effect by making these sites at a higher risk to looters.

The efforts that Yosemite National Park's RMS division makes to protect archeological resources is phenomenal. When performing ecological restoration, crews will first look over NPS maps for the previously documented presence of cultural sites or

artifacts. Restoration work is then altered if the place is a known cultural site. These artifacts are often visible within the first few minutes of walking in the area. The designation of a cultural site is determined by the presence of artifacts or its existence in recorded history. My personal experience shows cultural evidence far beyond the span of site designation. A seemingly more appropriate understanding would consider the entire area as an ethno-historic cultural landscape, especially when multiple sites are within fifty feet of one another. As much of the park remains un-surveyed, wilderness restoration crews help identify archeological findings in remote areas. My experience working with RMS has shown me the protective as well as potentially damaging impacts of ecological restoration on archeological and cultural resources; it is a delicate balance. Without environmental restoration, some artifacts lay exposed and disturbed, prone to damage or theft by public or ill-informed employees as I have witnessed. Archeologists and ecological restorationists working together help each understand the importance of both resource types. The inclusion of a work crew in Yosemite made up of tribal and local adults is a new development implemented during the 2016 summer season. Hopefully, further partnerships with tribes will allow NPS employees an opportunity to gain an understanding of tribal perspectives.

A sense of place is often described with a spiritual feeling and connection to ancestors by Indigenous people. In Yosemite Valley, the smell of hamburgers and exhaust has eclipsed the scent of cedar. Gone are the deep, resonating sounds of women pounding acorn. Employees and visitors also experience spiritual connections with nature in Yosemite, adhering closer to a tradition of exalting the landscape as pristine or

untouched. The erasure of Native peoples pervades popular mythology as well as the scientific community (Dongoske et al. 2015).

On April 20th, 2015, the *Gathering of Certain Plants or Plant Parts by Federally Recognized Indian Tribes for Traditional Purposes* requiring an Environmental Assessment for specific plants by traditional associated Federally Recognized tribes was proposed (Tirado 2015) and became effective August 11, 2016 (Federal Register 2016). I only became aware of the rule during the final months of this research after completion of the interview process. I was unable to ask many of the weavers about their opinion or whether they were aware of this rule. During the 2018 Annual Tribes Meeting in Lee Vining, CA, the new regulation was discussed at length. The decision ignores the history of successful Indigenous land management while completely marginalizing Alaska and Hawaiian Natives as well as tribes who lack federal recognition. Two years post-ruling, only two tribes are working with NPS to develop the first plant gathering agreements, while numerous tribes have also inquired about this new rule (Talken-Spaulding & Watkins 2018). *The Applied Anthropology in the NPS Second Century of Stewardship* document intends to make the ruling seem progressive (Talken-Spaulding & Watkins 2018). However, the ruling creates further bureaucratic barriers between tribes and ancestral lands. For Federally Recognized tribes, it creates financial costs to develop an Environmental Assessment (EA); for petitioning and non-Federally acknowledged tribes it is completely prohibitive to traditionally associated tribes continuing their cultures and traditional practices/arts such as basketry. Six consultation meetings were held across the United States for Federally Recognized tribes from May to July of 2010 with an

additional consultation meeting in Minnesota during September 2010 (Federal Register 2016). Within the entire sixteen-page document, the words Traditional Knowledge are mentioned only once. The requirement for Federally Recognized tribes to complete an EA without specified funds further disenfranchises tribes without robust financial resources. NPS may want to rethink this ruling quickly as the enforcement of this rule on tribal members gathering may lead to serious outcomes relating to the citation of tribal members as many tribal governments are not aware of the actions of all tribal members. Furthermore, this regulation may appear to many Native people to be more “red tape” from the federal government infringing upon the spiritual and religious practices of American Indians.

The NPS Gathering Rule may further prevent gatherers from disclosing their locations due to the lack of trust that exists among Native Americans and the federal government, as well as prevent new weavers from being identified due to the ruling that requires identification of tribal gatherers. It has been suggested that Federally Recognized tribes initiate a request to develop a management plan over the gathering of a plant commonly known. For medicinal plants, does this impact the American Indian Religious Freedom Act? This ruling ignores tribal customs and tribal relations. For weavers who have married in or have been adopted into tribes whose ancestral lands now make up National Parks, this essentially bans them from gathering. Had this rule been in place, master weavers like Dr. Julia Parker would have been prohibited from collecting in her husband’s place of birth and ancestral homeland.

In the most recent NPS document concerning Native Americans *2006 Native Americans and NPS Management Policies*, the interpretation of conservation favors a hands-off approach with the wording “ensure that conservation will be predominant when there is a conflict between the protection of resources and their use”(NPS 2006). If the impairment of the resource is occurring due to their lack of use, i.e., maintenance and gathering, then the interpretation of conservation as strict preservation is detrimental to the resource. As Merv George Jr. said, “Some things can be protected to death” (M. George Jr., pers. comm., 2017). Indigenous understandings of nature include the responsibility to maintain the resources through responsible use and care to help perpetuate those resources into the future. If we do not continue these responsibilities, then the plants become unusable and “go away” as many gatherers can attest to plants abundance or quality decreasing.

Restoring Indigenous reciprocal relationships is necessary to allow for the transmission and generation of Indigenous Knowledge, as this is ultimately how one learns, affecting what one learns and how one manages a forest (Bussey et al. 2015). Indigenous perspectives have too long been absent from Federal land management decisions (Huntsinger & McCaffrey 1995). Johnson & Murton (2007) state the separation of the “civilized” man from nature continues in geographic thought and has only recently been challenged in modern academic writings about Indigenous relationships with nature by mostly non-Indigenous voices. The voices of traditionally associated Indigenous people must be heard and integrated into park management if NPS is to achieve engaged

stewardship and indeed preserve natural and cultural resources in its second century of existence.

The lack of inclusive voices is not only an issue in U.S. government institutions but within the environmental field as well. White, ethnocentric ideals of preserving land without human influence are detrimental not only to society but to our environment because no management is without human influence, evidenced by the fire suppression policies from 1890-1970s in Yosemite National Park.

My research confirms the small amount of gathering that happens on public lands with most weavers admitting that basketry is losing practitioners. Shrack (2018) writes PEER opposed the endorsement of officials turning a blind eye to the violations of traditionally associated tribes of Yosemite National Park gathering of plants for traditional use. This organization should be further encouraging these traditional forms of management to increase ecosystem biodiversity and resiliency as well as promote cultural continuance.

As a restoration worker, I've wondered what upper NPS management perspectives of ecological restoration are, and whether they are moving to implement any policies that incorporate Indigenous Knowledge (IK) across the NPS. Washington Office Program Manager of the NPS Park Cultural Landscapes Program, Sue Dolan's knowledge and understanding of the benefits of returning traditional uses to national parks provides hope for the future. Her support of TEK integration into restoration management stems from the acceptance of the reality that restoring native species is intricately tied to Native American cultures (S. Dolan, pers. comm., 2018). De facto

institutional actions show little movement in this direction, but at least the understanding exists in principle.

The NPS is bound by law to work with traditionally associated tribes.

Ethnographic landscape recognition is also bound by law and policies to work with historically associated tribes. Successful partnerships between tribes and parks include a National Historic Landmark where the restoration of a camas prairie is cultivated by Nez Perce tribal members with traditional harvesting-stick methods in Idaho (S. Dolan, pers. comm., 2018). A couple of National Park units in South Carolina are in partnership with the Muscogee Tribe, where there is a collective effort to influence National Preservation of sweetgrass which is highly impacted by development (S. Dolan, pers. comm., 2018). Another collaboration between tribes and the NPS mentioned by Dolan, occurs for a National Historic Site called the Hubble Trading Post, where the Diné (Navaho tribe) help interpret the site with goals to restore historic terracing and grow traditional crops to improve nutrition. This collaborative effort is holistic restoration that considers a relationship over a long period (S. Dolan, pers. comm., 2018).

Traditional Cultural Properties (TCP) landscape recognition has been Euro-American or Euro-settler based according to Sue Dolan. However, she does believe the National Register is going to allow more fluidity in the recommendation of a TCP. The current recommendation procedures for nominating a National Historic landscape have improved but are limited as the nomination cannot come from within NPS. Nominations must come from traditionally associated tribes, with NPS assistance occurring after tribes write a submission (S. Dolan, pers. comm., 2018). NPS has often completed research that

warrants TCP designation; it still places the task of nomination on tribes overburdened with issues affecting their sovereignty, economic development, health and wellness. Currently, ethnographic sites are not as readily identified or nominated due to ethnocentric ideology favoring Historic Vernacular Sites (E. Thorsguard, pers. comm., 2018), a designation mostly reserved for European-American settlement and defined as a cultural landscape that evolved through use by people whose activities or occupancy shaped that landscape (NPS 2019). S. Dolan acknowledged that TCPs are most common in places that are important to both Native and English settlements, and are often associated with battles, such as the Big Hole Battlefield, where the Nez Perce people in Montana almost escaped the US Military *en route* to Canada (S. Dolan, pers. comm., 2018).

The importance of TCP recognition helps in the interpretation of a site. At the Big Hole Battlefield, willows are managed to appear as they had existed in the riparian corridor when some of the Nez Perce hid in them to help explain the significance of the landscape (S. Dolan pers. comm., 2018). TCP designation means NPS must intervene to retard succession in this case of the willow and riparian habitat in order to manage cultural and natural resources at the Big Hole Battlefield. This perpetuating of cultural resources is a new understanding for many in thinking about how the two systems evolved with each other (S. Dolan, pers. comm., 2018). In general, she believes most managers are aware of the benefits of managing the landscape with diverse methods with the goal of richer species diversity, necessary in a time where climate change is influencing early or late seral stages (S. Dolan, pers. comm., 2018).

S. Dolan (pers. comm., 2018) admits the NPS mission is difficult to accomplish as some interpret it differently. The agency is also not good at measuring its successes, often relying on metrics like visitation to some already overcrowded parks (S. Dolan, pers. comm., 2018), missing opportunities to celebrate successful partnerships and programs. Projects that promote ecological restoration with tribes and traditionally associated groups should be celebrated and shared to help educate the public. The partnerships that currently exist could inspire other parks to develop similar agreements that give NPS statements credence and should help define the NPS mission of protecting cultural and natural resources unimpaired for future generations.

While speaking to Sue Dolan, I mentioned that I had read the new regulation and how defeated I felt with the prohibition of my tribe from gathering in our ancestral lands. She acknowledged that the new statute requires extensive planning assessment through the NEPA process. She believes further research will continue showing the benefits of traditional plant management and harvesting (S. Dolan pers. comm., 2018).

Superintendents matter!

On June 1, 2018, I witnessed Yosemite National Park superintendent Mike Reynolds sign a thirty-year Memorandum of Agreement (MOA) with the AICMC (aka Southern Sierra Miwuk Nation) to co-manage the Wahoga village in Yosemite Valley (George 2018). My elders began working to this point with the signing of the General Management Plan in 1980. To me, this agreement represents hope, justice, and healing. Within this village area, native plants will be cared for and utilized for medicine, food, and basketry. Women's ceremonies can be reawakened, reminding us of our

responsibilities to the earth, ourselves and one another. Indigenous presence and education will further help educate the public about TEK and holistic practices that speak of the importance to care for both sentient and non-sentient beings.

NPS Directors Order 100, *Resource Stewardship for the 21st Century*, contradicts the 2016 Gathering Rule which recognized Indigenous people with ancestral ties to parklands as having an essential role in the NPS mission and its stewardship (NPS 2016). The order was rescinded August 16, 2017. Indigenous Knowledge cannot be implemented without Indigenous people. The general impression I've formed from managerial interviews is that so far only a handful of projects have involved tribal communities in the restoration of native plants for recognized ethnohistoric landscapes, not specifically for cultural use. A quote from Bussey et al. (2015) sums up my experience working with ecological restoration and classroom perspectives on environmental restoration seeking to restore natural processes, i.e., not for cultural use. "There are partnerships that have been developing, especially historic preservation with archeology...Then firefighting, they help each other with the prescribed burning on both Forest Service and Tribal lands...But, that doesn't cover all the bases. That doesn't cover gathering traditional resources and identifying and evaluating those resources. They avoid that issue of evaluating our traditional resources" (Bussey et al. 2015).

Bussey et al. (2015) conclude that over the long term, the inclusion of more Indigenous staff in public land management agencies can help integrate knowledge generation and transmission. Within the past eight decades, there have been twenty-five different superintendents at Yosemite National Park (George 2014). Within the past six

years, four different American Indian cultural liaisons have filled and vacated the position in Yosemite and general staff turn-over is a constant issue affecting knowledge generation and tribal relations.

Having worked for the National Park Service for close to a decade for trails and restoration as well as several seasons with the concessionaire and one season for a nonprofit, California Indian Manpower Consortium (CIMC), I know the employee culture and the training most employees receive as well as where separate NPS divisions spray herbicides and or remove plants. It is from this experience of working and seeing some of the outcomes over the years that I began to notice the problems behind the NPS ideas of what natural. Is allowing succession to occur and responding by removing trees from scenic vistas with chainsaws natural? The information visitors and employees receive/don't receive about American Indians and public lands contribute to the disconnect of protecting natural and cultural resources (Keller & Turek 1999), and some may say the continued prejudice towards American Indians. I've often felt the need to slow down and breathe and say a little prayer before cutting willows but have often felt uncomfortable enough to say anything about culturally sensitive plants when working amongst usually non-local seasonal workers whose knowledge of the history and presence of American Indians is often ill-informed. As ethnohistory expands, I believe botanists and the like will become more familiar with cultural sensitivity.

I know many people within NPS who support the continuation of Indigenous cultures and basketry. Many employees, however, come to work in our national parks with little cultural understanding or knowledge of American Indian cultures and history.

I've educated employees about the disrespect felt over the taking of arrowheads as well as informed visitors and my academic peers about American Indians' continual existence. In another generation, the NPS will have to face once again the non-inclusion of Indigenous perspectives in the new *Gathering Rule for Plants and Plant Parts* by Federally Recognized tribes as knowledge of Indigenous cultures and issues are taught in the curriculum of California public high schools starting in 2022 (Legislative Counsel Digest 2017). Public land agency officials should be required to take cultural sensitivity courses and American Indian history to gain perspective on the issues confronting the peoples whose ancestral homelands public lands now encompass.

As it stands, the prohibitive laws meant to protect native plants threaten biodiversity and endangered American Indian cultures. Within these endangered cultures are Native American people whose health and wellbeing are enhanced with traditional cultural practices, that support physical, mental, spiritual, emotional health, TEK and language revitalization efforts. Ignorance of the difficult and highly biased Federal Acknowledgment Process (Miller 2004) and the requirement of an EA through the bureaucratic NEPA processes, highly criticized for its lack of Indigenous understanding of humans and the environment (Dongoske et al. 2015), is not only contradictory to their statements and mission but is environmental injustice. Indigenous people continue to exist whether the Federal Government acknowledges us or not. See Appendix e for recent public comments by previous Office of Federal Acknowledgment (OFA) staff members on the November 2018 Proposed Finding (PF) of my tribe (Southern Sierra Miwuk Nation, Petitioner #82). Indigenous people's knowledge of themselves and

confidence to persevere is noted by Schrack (2018) citing a member of the Eastern Band of Cherokee's response to developing an EA in the faith of Indigenous people existing far longer than the Federal Government's existence.

Within Yosemite Valley, a fellow employee who worked for maintenance told me that they spray Round-Up on poison oak in residential areas. The indiscriminate use of herbicide by some divisions and lack of knowledge of sensitive cultural plants has often left many elders feeling exasperated and disrespected (W. Tucker, pers. communication 2017). The application of herbicide and pesticides pose a significant threat to weavers as most material is handled with the hands and mouth. Often weavers will look for plants that have signs of insect effects to avoid chemicals sprayed on plants. The California Indian Basketry Association (CIBA) is entirely against the application of chemicals on plants as the effects have caused an increased presence of cancerous sores around the mouths of weavers (Pfeiffer & Ortiz 2007; Pfeiffer and Voeks 2008). Plants exposed to chemicals, potentially used by weavers, means baskets are poisoned from the beginning. In 1916, the Department of the Interior discouraged Native American use of cradleboards in the guise of health and safety (US Office of Indian Affairs 1916), with racial superiority and assimilating undertones. Pesticide application is of utmost concern if the intended purpose of the plant is to construct a cradle for infant care. *Precious Cargo* author, Brian Bibby (2004) writes about the functionality and symbolical importance of cradles solidifying familial relationships and tribal worldviews. At gatherings and ceremonies, the revitalization of the use of cradle boards is obvious with numerous babies

being held in them (Luger 2018), further demonstrating the importance of quality plant material necessary for basketry and cultural continuance (Aldern 2012).

The Yosemite Valley *Scenic Vista Management Plan* calls for the re-creation of the historic views, acknowledging the negative effects of Western anthropogenic management that excluded fire while ignoring the anthropogenic ignition by American Indians that helped create these views (NPS 2015). The lack of inclusion of Indigenous fire in this narrative contributes to the erasure of Indigenous people from the landscape. The Yosemite NPS webpage about the plan currently reads, “The mix of meadows with low and high-density forests throughout the park was maintained by natural (unplanned ignition) wildfires that burned in mosaic patterns” (NPS 2015). Anderson (1994) a lead ethnobotany researcher stated the black oak, ponderosa savanna in Yosemite Valley was dependent upon the on-going intervention of Miwok people burning. The science is in, and NPS continual erasure of Indigenous influence threatens biodiversity by restoring historic vistas in Yosemite Valley without the processes that helped create them—Native American fires and stewardship.

The effects of fire exclusion are now widely known. The ecological effects of the removal of the Indigenous people and the loss of biodiversity are beginning to be known by the wider public due to research findings and publications (Johnson 2014), and as concern over the effects of a changing climate affect biodiversity and human environments (Voggegger et al. 2013). Forced removal, assimilation policies and the resulting social ills are also widely known. This Gathering Rule creates added bureaucratic obstacles to traditionally associated tribes and peoples’ continuing their

culture and responsibility in caring for ancestral and family gathering areas. The contradictory statement made about the stewardship of the National Parks and the Gathering Rule are nothing new to Native American people. As my grandmother said about newspaper articles written about Native Americans, “They like to contradict themselves” (P. Beale, pers. comm., 2018). How many years must pass before endangered species, cultures, languages are allowed to live?

Erasing Indigenous presence has been perpetrated in the interpretation of the park’s history by rangers citing first ascents, and peak names given by European settlers, ignoring the archeological evidence and Indigenous names of these places. Park interpreters have perpetuated the idea of an empty or “virgin” landscape with the concept of “first ascents” such as Matheson and his renaming of Parsons Peak while finding a bow on top of the mountain (E. Dayhoff pers. comm. 2018). This language is slowly changing as American Indian cultural demonstrators continue educating their co-workers and stressing the importance of recognizing Indigenous history. Perhaps park interpreters will become more honest in their programs, using a quote by E.O. Wilson to relate to the removal of Indigenous people and stewardship from national parks as cited in Alcorn & Oldfield (1991) “On a global basis, human cultural diversity is associated with the remaining concentrations of biodiversity. Both cultural and biological diversity are endangered. Modern cultures are undercutting traditional cultures, and modern knowledge is replacing traditional knowledge” (Wilson 1991).

National parks were created at the expense of American Indians. Founders of the Sierra Club, John Muir, and the eugenicist/slave owner, Joseph LeConte’s perspectives of

conservation meant Indigenous removal from national parks. Western concepts of protection have harmed Indigenous cultures and decreased biodiversity around the world (Stevens 1997). This founding of policies aimed at Indigenous removal is sadly being implemented a century later with the Gathering Rule. For the Department of Interior officials to feign ignorance of their own history of removal and previous Federal and NPS policies towards American Indians is wrong.

Yosemite National Park Service removed the last Indian village in the late 1960s (Solnit 2014). Today these people, my elders and grandmother's generation, live mostly in the communities bordering Yosemite National Park (George 2014). No longer able to live in a village in close proximity to relatives who raise each other's children as their own, our culture has changed to a community level connection where children are raised in individualized homes spread across the county and state. This difference in upbringing creates individualism and divisiveness, a goal of assimilation policies (Smith 2004). Whether the younger generations can bridge this divide is difficult to say. Non-federally recognized tribes face the same health disparities as Federally Recognized tribes but without the resources and ability to apply for specific Federal grants aimed at revitalizing cultures and traditional management. Further research could look at the poverty levels and health disparities among Federally Recognized compared to that of non-Federally Recognized, petitioning tribes. The Federal Recognition process is meant to disenfranchise tribes. It is a burdensome process that is disastrously slow. Tribes such as mine, the Southern Sierra Miwuk Nation, which has been petitioning for close to forty years (since 1982), exist in a limbo without acknowledgement or justice. Tribal elders

have been seeking justice through previous avenues through the NPS and other organizations and agencies since the 1970s, in essence since the first treaties were signed in the 1860s. These treaties signed by 134 bands ceded 8.5 million acres throughout California but were never ratified by Congress and were hidden away until 1905 (Miller 2013).

Indian Trust lands constitute 540,473 acres, less than 1% of the total area in California (Heizer & Elsasser 1980). There are 109 Federally Recognized tribes and 78 entities petitioning in California (Judicial Council of California 2018). Landless Indians have trouble continuing their traditional land management practices not only because of federal and state jurisdictions, regulations and laws but also due to poverty and other effects of oppression. Federal grants through the Natural Resource Conservation Service (NRCS) exist for private property owners which aid in managing their private lands to conserve natural resources. Without significant acreage, traditional land management practitioners are losing out to ranchers and farmers who qualify for more funding.

Elders born in Yosemite Valley continue to pass away without any acknowledgment of their existence or rights in their ancestral homelands. This injustice is not only social but environmental. Tribes like mine, as well as some Alaska Natives and Native Hawaiians, are not allowed to continue our cultural traditions of gathering plants, suppressing our relationship with our ancestral and spiritual lands. The ecological consequences of banning Indigenous tending practices cannot be fully quantified as so much of California's landscape has been drastically altered.

For American Indians who belong to non-Federally Recognized tribes, it is often challenging to provide tribal consultation due to limited budgets and time constraints. Maintaining the culture and providing a life for our families are our first responsibilities, while also healing from the same traumas experienced by Federally recognized tribes. My grandmother Peggy Beale-Shea is one such elder who was born in the old Indian village in 1931 around the time NPS decided to build a hospital (Yosemite Medical Clinic) in the same location. The Indian residents were forced to vacate the village. She, like many from her generation, was sent to the North Fork Indian Mission, a government sponsored boarding school for Indian children.

“They were pretty strict, those white teachers, teaching us their religion. And then we had to sleep out on the porch, and I don’t think there were any windows, they’re just screened in, and it snowed up there, so it was cold” (P. Beale, pers. comm., 2017).

I had never heard this story until I interviewed her for this project, but I grew up hearing about the time her younger brother Fred Beale ran away from the mission and was caught, punished by being fed only bread in a room by himself for a week. The societal effects of forced child separation are already known; it is atrocious that the US Government continues this practice today. As a young adult, my grandmother and her three younger brothers and many American Indians from that era served in the armed forces. In the 20th century, per capita Native Americans/Alaska Natives served in the US Military in higher rates than any other ethnic group (Bahrapour 2018). She raised her children with the help of her parents in Los Angeles, CA working swing-shifts in a glass factory for thirty-three years. Many times, they would take trips to visit relatives and

ancestral homelands. For there to be any hesitation by the Federal government or others to acknowledge Yosemite Indians is wrong, as my grandma has said, “Every Indian deserves to be recognized!” (P. Beale-Shea, pers. comm., Aug. 2017).

Traditional Cultural Properties

Wilderness areas in Yosemite have been affected by over 100 years of fire exclusion and are now rapidly changing from anthropogenic-caused climate change. Meadow succession is occurring rapidly throughout the park (NPS 2018). Tuolumne Meadows, a non-recognized “cultural landscape,” will eventually turn into a forest as the last glaciers recede and no longer provide fresh water throughout the summers. Although American Indian fire management in the High Sierra is not known in the dendrochronological records as it is in Yosemite Valley (Ahwahnee), the recognition of a cultural landscape can allow public land agencies the ability to manage them with prescribed values. The process to recommend an ethnocultural landscape is complicated, and only Federally Recognized tribes can make recommendations. Much like Native Americans managed the landscape for food and resource availability, NPS and other public land agencies are managing these landscapes for specific reasons, i.e., not naturally. Traditional land management strategies should be included if not heavily featured in the NPS goals and objectives.

With time, greater recognition of public and private lands as Indigenous homelands will encourage traditional uses of natural resources, further creating heterogeneous landscapes with greater biodiversity and ecosystem resilience necessary in a rapidly changing world. Indigenous tribes are working to revitalize our cultures,

languages and relationships with the land and each other. Managing plants for cultural and ceremonial uses already occurs on tribal lands. Tribes will continue developing economically, educationally and institutionally, seeking justice for all creation.

Determining restoration techniques of tule for cultural use is one step towards this goal.

The recognition of Yosemite Valley's prior management by Ahwahneechees will eventually come to light as descendants like myself continue working to protect our home because of our inherent responsibility to our ancestors and future generations. Miw'uu attik' uchup. (Our people still live), is a continuing story of resilience.

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APPENDIX A

Appendix C: Sample semi-formal interview questions for weavers/cultural practitioners.

1. What is your name? (Can remain anonymous).
2. How old are you? Age group: (20-30s) (30-40s) (50-60s), (70+)
3. Are you a tribal member?
4. Which tribe(s)?
5. Do you weave or practice any other cultural activities?
6. Do you gather plants with others?
7. Who taught you?
8. When do you gather?
9. How do you gather, cut above or below the waterline? How close to the root?
10. How often?
11. Do you remember growing up with knowledge about burning?
12. Do you believe the knowledge of gathering and weaving baskets are being passed to younger generations?
13. Do you believe the youth want to learn basketry or other gathering practices such as singing/praying?
14. What do you believe can be done to encourage or increase interest and knowledge about plants and cultural customs?
15. How does harvesting tule make you feel?
16. Have you taught basketry to others in your family?
17. How do you feel when teaching others about harvesting plants and basketry?

18. Are there any difficulties you face in acquiring basket material?
19. What factors are important when working with tule?
20. How long do you let the tule dry or cure and soak before you work with it?
21. What would you consider to be the characteristics of tule that is good for basketry or other cultural uses?
22. Do you gather in the same place every year or rotate the places you gather from?
23. Do you buy, trade or sell basketry material to others?
24. Have you seen tule abundance change and if so, what factors do you associate with that change?
25. What do you believe is the best management regime for tule growth?
26. Does the presence of pest change or deteriorate the tule?

APPENDIX B

Appendix D: Semi-formal interview questions for public land agency personnel.

1. How does the NPS continue the preservation of plants for cultural/ceremonial use?
2. Is Indigenous knowledge being incorporated into ecological restoration plans, if so, how?
3. How could the recognition of a cultural landscape change natural resource management?
4. How does the NPS Final Ruling on gathering plants by traditionally associated, federally recognized tribes help preserve native plants and culture if tribes are non-federally recognized?
5. Does the NPS have any funds directed to the preservation of natural resources for cultural preservation and continuance?
6. Many plants used for basketry require burning. Is the NPS working to facilitate collaborative burns to reduce hazardous fuels as well as promote quality basketry material?
7. When prescribed burns are implemented, how closely do fire agency personnel work with tribes and cultural practitioners, weavers?
8. Do you believe the NPS employee training is adequate concerning Indigenous history and presence in our National Parks lands?
9. What are some of the difficulties encountered in restoring cultural landscapes?
10. How can cultural landscape preservation nomination procedures be improved for ethnographic landscapes specifically?
11. Do you think the lack of diversity in NPS management has impacted the agency's decision in protecting resources for cultural use concerning Native Americans?

APPENDIX C

Appendix C: Archival Sources

Craig Bates Collection Box 26 Folder 1086 Sources/Research

Mariposa Gazette, October 7, 1870, pg. 2, col. 1

“Fire in the Pineries

Some Indians one day last week carelessly dropped some matches in the dry grass at the head of the meadow on Clark and Moore’s ranch, which, igniting from rays of the sun, ...Galen Clark, and others, had to work hard for four days, clearing away the grass and loose brush and otherwise battle the fiery element in order to keep it out of the Mariposa Grove of Trees. It failed to reach the Grove, but turned over a large tract of land outside of it.”

“Town and County Matters

August 20, 1869

The Yo Semite Valley – Another Claim Raised Against It.

This season there will be a larger quantity of black oak acorns in the Yo Semite Valley than ever before known in one season. It is the custom with the Indians to commence gathering them for food very early in the Fall by cutting off the branches of the trees before the acorns are ripe enough to fall. While on a recent trip to the Valley, Mr. Galen Clark, one of the Commissioners and Guardian of the Valley, had a talk with the Indians living there, requesting them not to cut off the branches of the trees, but wait until the acorns fell off and then gather them. They replied that he had never paid them for their acorn trees nor the Valley, neither had anyone else paid them. If the State “officials,” or the American people would pay them for the Valley, they would not cut the trees, but until they were paid they had a right to cut them if they wished to. The Guardian explained to them that it would be better for them not to injure the trees by cutting them even if they had never been paid. But they failed to understand why it was right for the Americans to cut down and destroy large numbers of their best acorn trees in making ranches throughout the country, and that it should be so very wrong for them to cut down a few branches to gather acorns from trees which they had never been paid for.

Galen Clark

“The Valley had then been exclusively under the care and the management of the Indians, probably for many centuries. Their policy of

management for their own protection and self-interests, as told by some of the survivors who were boys when the Valley first visited by Whites in 1851, was to annually start fires in the dry season of the year and let them spread over the whole Valley to kill young trees just sprouted and keep the forest groves open and clear of all underbrush, so as to have no obscure thickets for a hiding place, or an ambush for any invading hostile foes, and to have clear grounds for hunting and gathering acorn. When the forest did not thoroughly burn over the moist meadows, all the young willows and cottonwoods were pulled up by hand.”

Friday Jan. 7, 1870 P. 2 Column 5

Galen Clark

Yo-Semite— A Letter to the Farmer

“I am sorry that all Californians do not think as much of this wonderful place as lovers of nature do from other parts of the world. Would that these private claims could be speedily settled by buying them up with gold, rather than that any private interests should continue to grow there to interfere with the sacred purpose for which it was intended. This valley is not an ‘Elephant’ as some have suggested; but a treasure of priceless value, which adorns California’s magnificent brow; such as no other country does or possess. It was California’s birth right before she was captured and domesticated in our great republican family. It was one of her crown jewels, and the Government did her but an act of justice when it gave it back into her care and custody. In fact it would have been justice that she should have all her crown jewels restored to her—gold, silver, wealth they of forest and all. But many in California have no more idea of the value of Yo Semite to the State than the ancient Digger Indians had of the wealth they were walking over while catching fish along the banks of our crystal streams, or corralling grasshoppers on our fertile plains.

Visitors to Yo Semite, the past season, have spent considerably over one hundred thousand dollars in making that trip, to say nothing about how much more they have spent in other parts of the State, and travel will increase from year to year to see this wonderful place, until Yo Semite will be a source of great revenue indirectly to the State, and then she will assume her proper high position in the estimation of her people.”

Rafael, William H. Stoy letter to Secretary of the Interior Dec.10, 1890:

“I visited the valley again...a lapse of twenty-four years since I had first seen it. The contrast between things then and now is something remarkable...another thing that struck me forcibly in the contrast with 1866 was the immense increase of trees and small undergrowth everywhere visible in the valley...while the majestic Giant Trees of

primeval growth seemed to be as numerous as in former days. The valley, as I saw it in 1866, was more in the condition that the aborigines had left it...In consequence, also of the openness then existing, much better views existed of the waterfalls and cliffs, from the floor of the valley, in any direction.”

“At that time in the graceful bends nestled beautiful meadows. Outside of the meadows noble pines, Douglas Firs, and cedar dotted the valley. No underbrush, cottonwood nor second growth pines and fir to obstruct the view of the marvelous walls of the valley” (H.J. Ostrander).

Joaquin Miller, in a paper read to Congress in 1887.

“It was my fate to spend my boyhood among the Indians. They were the only foresters I ever knew. In the spring, after the leaves and grasses had served their time and season in holding back the floods and warming and nourishing the earth, then would the old squaws begin to look about for little dry spots of head land of sunny valley, and as fast as dry spots appeared they would be burned. In this way the fire was always under control. In this way the fire was always the servant, never the master. And by the time the floods came again then there was another coat of grass and leaves, stronger and better than the one before because of the temperate use of fire by the careful and wise old women. By this means the Indians always kept their forests open, pure and fruitful and conflagrations were unknown.”

Willis H. Baxley wrote of his observation of Indians setting fires in Yosemite Valley in his book published in 1865.

“A fire-glow in the distance, and then the wavy line of burning grass, gave notice that the Indians were in the valley clearing the ground, the more readily to obtain their winter supply of acorns and wild sweet potatoe root-“huckhau”/ fire to clear ground in the fall of 1861 for the purpose of obtaining acorns and wild sweet potato (huckhau).” (Baxley 1865).

M.C. Briggs (Dec.18, 1882)

“In our brief report of 1880, we called attention to the rapidly increasing breadth of underbrush and second growth pines, and need not restate our convictions with respect to the importance of counter-working this spreading infestation. While the Indians held possession, the annual fires kept the whole floor of the valley free from underbrush, leaving only the majestic oaks and pines to adorn the most beautiful of parks. In this one respect protection has worked destruction.”

Bunnell, L. H. (1892).

“These baskets were quite numerous, and were of various patterns and for different uses. The large ones were made either of bark, roots of the Tamarach or Cedar, Willow, or Tule. Those made for gathering and transporting food supplies were of large size and round form, with a sharp apex, into which, when inverted and placed upon the back, everything centers. This form of basket enables the carriers to keep their balance while passing over seemingly impassable rocks, and along the verge of dangerous precipices. Other baskets found served as water buckets. Others again of various sizes were used as cups and soup bowls; and still another kind, made of a tough, wiry grass, closely woven and cemented, was used for kettles for boiling food. The boiling was effected by hot stones being continually plunged into the liquid mass, until the desired result was obtained.”

APPENDIX D

Appendix D: R Output

```

Call:
lm(formula = TH_2 ~ Treatment + TH_1 + Abun_1 + BM_1, data = AllData)

Residuals:
    Min       1Q   Median       3Q      Max
-115.56  -14.93    0.88   18.22  102.70

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   110.6222    21.0232   5.262 4.74e-07 ***
TreatmentCUT    34.4444    10.2325   3.366 0.000964 ***
TreatmentCUTBURN 24.0655     7.4975   3.210 0.001619 **
TreatmentNONE   28.5397    10.3587   2.755 0.006579 **
TH_1           0.8631     0.1640   5.263 4.73e-07 ***
Abun_1         -0.9749     0.7496  -1.300 0.195387
BM_1          -37.9621    12.2832  -3.091 0.002374 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 30.34 on 153 degrees of freedom
Multiple R-squared:  0.4647,    Adjusted R-squared:  0.4437
F-statistic: 22.14 on 6 and 153 DF,  p-value: < 2.2e-16

```

```

Call:lm(formula = Abun_2 ~ Treatment * BM_1 + Treatment * Abun_1 +
      Treatment * WL_1, data = my_data1)
Residuals:
      Min       1Q   Median       3Q      Max
-10.4678  -3.2602   0.1445   2.8106  14.2119
Coefficients:

Estimate Std. Error t value Pr(>|t|)
(Intercept)          23.47283     7.00895   3.349 0.00104 **
TreatmentCUT          -9.31978    10.05412  -0.927 0.35550
TreatmentCUTBURN      16.49764    10.89063   1.515 0.13200
TreatmentNONE         -5.29482    10.30571  -0.514 0.60820
BM_1                  -4.36142     4.58344  -0.952 0.34291
Abun_1                 0.02621     0.24517   0.107 0.91500
WL_1                  -0.16171     0.24104  -0.671 0.50336
TreatmentCUT:BM_1     13.69148     6.61541   2.070 0.04027 *
TreatmentCUTBURN:BM_1 -2.42267     7.67098  -0.316 0.75259
TreatmentNONE:BM_1     1.98453     5.78633   0.343 0.73212
TreatmentCUT:Abun_1    -0.34615     0.34349  -1.008 0.31527
TreatmentCUTBURN:Abun_1 -0.06548     0.33201  -0.197 0.84393
TreatmentNONE:Abun_1    0.29644     0.35042   0.846 0.39897
TreatmentCUT:WL_1      0.07293     0.34172   0.213 0.83130
TreatmentCUTBURN:WL_1  -0.43801     0.34270  -1.278 0.20326
TreatmentNONE:WL_1    -0.04663     0.34735  -0.134 0.89339
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 4.691 on 144 degrees of freedom
Multiple R-squared:  0.3028,    Adjusted R-squared:  0.2301
F-statistic: 4.169 on 15 and 144 DF,  p-value: 2.446e-06

Treatment  Abun_1  lsmean      SE  df lower.CL upper.CL .group
CUT        10.6375 13.65142 1.0627960 144 11.55073 15.75212  a
NONE       10.6375 15.53438 0.8824916 144 13.79007 17.27870  a
BURN       10.6375 17.69973 1.2725763 144 15.18439 20.21507  ab
CUTBURN    10.6375 22.09387 1.6474248 144 18.83761 25.35013  b

Confidence level used: 0.95
P value adjustment: tukey method for compar12

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APPENDIX E

Appendix E: Previous Office of Federal Acknowledgement public comment letters in response to the Proposed Finding of the Southern Sierra Miwok Nation.

December 4, 2018

401 King Farm Boulevard, Apartment 301
Rockville, Maryland 20850


Office of the Assistant Secretary for Indian Affairs
Department of the Interior
Attn: Office of Federal Acknowledgment
1849 C Street Northwest
MS-4071 MIB
Washington, DC 20240

Dear Assistant Secretary for Indian Affairs,

I am submitting the attached comments in response to your proposed finding against Federal acknowledgment of the Southern Sierra Miwok Nation, published on November 23, 2018. I was a historian with the Office of Federal Acknowledgment from June 2001 to October 2017. During that time I worked on, and wrote large sections of, seventeen findings on Federal acknowledgment in various stages, including, among other things, proposed findings, final determinations, and reconsidered final determinations. I also wrote two dozen technical assistance letters for Indian groups seeking Federal acknowledgment and was part of the Assistant Secretary for Indian Affairs' working group in 2015 and 2015 to revise the acknowledgment regulations that led to the publication of the current rule.

I have also submitted a copy of my comments to the Southern Sierra Miwok Nation.

Sincerely,

A handwritten signature in cursive script that reads "Aldo E. Salerno". The signature is written in dark ink and is positioned above the printed name.

Aldo E. Salerno, Ph.D.

Aldo E. Salerno's Comments on the Finding Against Acknowledgment of the Southern Sierra Miwok Nation (December 4, 2018)

1. Did the Assistant Secretary for Indian Affairs (AS-IA) issue an unauthorized finding?

On November 16, 2018, the Assistant Secretary for Indian Affairs (AS-IA) issued a proposed finding against acknowledgment of the Southern Sierra Miwok Nation (SSM). The finding evaluated only one of the seven mandatory criteria, criterion 83.7(b), or the community criterion, which a petitioner has to meet for the Federal government to acknowledge it as an Indian tribe. The finding also evaluated only the "modern" period of the SSM community from 1982 to 2011. The AS-IA claims to have the authority to issue a finding on one criterion under a Department directive of May 23, 2008, which permits a proposed finding on one, or more than one criterion, rather than all seven of mandatory criteria as required in most cases under the 1994 acknowledgment regulations, if the evidence shows the petitioner has failed on that criterion.

The directive, however, does not permit the AS-IA to issue a finding on only a portion of the criterion as the Department did in the SSM proposed finding where it examined only modern community. The only time the 1994 regulations allow the AS-IA to evaluate just modern community is when the Department has determined the group has met the requirements for previous unambiguous acknowledgment. But even in those cases, the AS-IA must fully evaluate the other six mandatory criteria. According to precedent, that evaluation of the other six criteria has always been necessary to inform and enhance the evaluation of modern community for a group that has previous recognition.

In the SSM finding, the AS-IA evaluated only 29 years of the SSM's community from 1982 to 2011 and did not examine the other six criteria, which would have certainly enhanced and informed the evaluation of modern community. The AS-IA cannot, in any meaningful way, fully know the basis of the SSM's modern community, without also examining the group's historical tribe and community, politics, descent from the historical tribe, and identification by outside observers. Instead, the AS-IA evaluated the SSM's community from 1982 to 2011 by examining only a smattering of interviews, group minutes, and attendance lists. By failing to examine fully the SSM community from first sustained contact to 1981, the AS-IA lacked any real understanding of how the historical context of the group's history during that period impacted its modern community, even though the regulations require the Department to take into account the historical context of every petitioner when evaluating the evidence.

The SSM will now be compelled to focus in its response during the comment period solely on the modern community. The SSM will not know what inadequacies, if any, exist in its petition record for the period before 1982 and after 2011, nor will it be given a fair chance and adequate time to obtain and review any evidence the Office of Federal Acknowledgment (OFA) might have obtained and analyzed for those periods before the next finding. The SSM should demand the AS-IA follow its own rules and re-issue a finding on all of the group's community from the 1850s to the present or a finding on all seven of the mandatory criteria.

2. Is the AS-IA being transparent and providing the SSM with all the evidence the OFA gathered for all the analyses it conducted during the eight years of active consideration of the group's petition?

When I left the OFA in October 2017, after 16 years of service, it had evaluated the evidence from and conducted several peer reviews of the SSM petition. The OFA then drafted several versions of the proposed finding, some nearly 200 pages long, reaching majority, affirmative conclusions on all seven mandatory criteria, which it eventually submitted to the Solicitor's office for review. To reach our

conclusions, the OFA staff reviewed thousands of pieces of evidence on the group's history from the 1850s to the present. The OFA staff conducted numerous analyses of this evidence on the SSM's historical tribe, community, politics, genealogy, identification by external sources, and previous acknowledgment under all seven of the mandatory criteria. While the Department may re-assess its conclusions regarding these analyses, the evidence it used to conduct them would be invaluable to the SSM in its pursuit of federal acknowledgment. For the OFA to withhold the evidence from the SSM would do the group irreparable harm. The SSM should demand all this evidence from the OFA so that it can submit a full and meaningful response to the AS-IA's negative appraisal of the group's modern community.

3. Has the AS-IA been completely transparent with the SSM about what the Department knows about the critical issues of the historical tribe, identification of the historical tribe's members, and unambiguous previous Federal acknowledgment?

In the proposed finding, the AS-IA appears ambiguous or tentative about reaching conclusions regarding the historical Indian tribe, lists of members of the historical Indian tribe, and unambiguous previous Federal acknowledgment, all critical issues for the SSM to have information about if it is to pursue recognition in any meaningful way.

For example, on the historical tribe, the AS-IA, after discussing some possibilities of the tribes in the Yosemite area from the 1850s to the 1920s from which the SSM may have evolved, makes this comment:

These sources, and others, may suggest that, at some point after the treaties, an Indian entity—or multiple Indian entities—may have formed in the general area of the Yosemite Valley and the Merced River drainage. The petitioner may wish to review these sources to help it develop a formulation of its historical Indian tribe and, during the comment period, the petitioner or third parties may wish to provide additional evidence supporting or refuting the Department's finding regarding the historical Indian tribe.

This seemingly helpful statement is both disingenuous and misleading. While I was at OFA during the period SSM was under active consideration, OFA staff members analyzed hundreds of documents and reached firm conclusions regarding the historical Indian tribe from which we believed the group descended. To say that these sources “suggest” the identity of the historical tribe is untrue; they define it with great clarity. Indeed, for the Department to profess uncertainty about the historical Indian tribe this late in the process and yet still evaluate the group's modern community is nothing short of bewildering. Moreover, while OFA is not required to do SSM's research, it certainly should not require the SSM to do unnecessary research for answers it already has unless the petitioner disagrees with those conclusions.

On lists of the historical tribe, the AS-IA similarly describes a number of documents the SSM could use to identify members of the historical tribe from which current SSM members could trace descent and then states:

The Department offers these suggestions as suggestions, not requirements, for identifying people who might have belonged to or descended from a historical Indian tribe in the greater Yosemite area. The petitioner may wish to provide additional evidence supporting the Department's findings regarding members of the historical tribe, or the petitioner may wish to provide the Department with its own evidence.

Again this vague statement is disingenuous and misleading for the same reasons as described above. The OFA analyzed scores of documents while SSM was under active consideration that were lists of the historical tribe and reached firm conclusions about their value as evidence of descent, including census, housing, and employment records from the National Park Service which the Department does not even mention in its suggestions in the proposed finding.

On unambiguous previous Federal acknowledgment, the AS-IA after discussing some 1850 treaties the SSM might use as evidence of previous acknowledgment provides this guidance:

If the petitioner decides to request unambiguous previous recognition because of this treaty evidence, they should submit evidence that sets forth this claim.

This statement is not only disingenuous and misleading but a violation of the spirit and letter of the regulations. The OFA analyzed dozens of documents on previous recognition while the SSM was on active consideration and reached firm conclusions, covering several pages of text, regarding the issue. Those documents included not only the 1850s treaty records but also court case and newspaper evidence from the late 19th century. While the OFA is not required to do SSM's research, it is certainly required to examine any evidence of previous recognition it finds during active evaluation, to reach a determination, even if preliminary, about that evidence, and to provide that evidence and conclusion to the petitioner in its finding. For the AS-IA to put the burden of submitting the evidence for previous recognition on the SSM this late in the process when the OFA has that evidence is to put the group at a serious disadvantage. In fact, to do so would be improper.

The SSM should demand the AS-IA provide the group all the information the OFA has on the issues of the historical Indian tribe, lists of the historical Indian tribe, and previous unambiguous Federal acknowledgment.

4. Why did AS-IA fail to take into account and explain what evidence the 1982 finding for federal acknowledgment of the Death Valley Timbisha Shoshone Band provides as precedent in the acknowledgment of the SSM?

In 1982, the Department acknowledged the Death Valley Timbisha Shoshone Band of California through the acknowledgment process. As part of the evidence for acknowledgment, the Department's finding took special note of the group's relationship with, and recognition by, the National Park Service from 1933 to the present. Under that relationship, the Park Service provided relief, housing, and employment for the Indians, modeled on a program established earlier at Yosemite Park in California for the Yosemite Indians, from whom the SSM evolved. In fact, the Park Service at Yosemite Park has recognized and had a relationship with the SSM for over 100 years. It also provided relief, housing, and employment for the SSM and other Indians into the 1960s, and still considers and includes the SSM as a critical element of the Park history it provides to the public.

Yet, the AS-IA in the SSM finding barely mentions the National Park Service or its relationship with and recognition of the SSM. Nor does the finding describe the numerous documents, contained in the SSM petition record, which the National Park Service produced about the SSM community. These documents include Park Service correspondence, often to and from the BIA, censuses, and financial, employment, and housing records. It is beyond comprehension that the Park Service, a part of the Department of Interior, recognizes and maintains a relationship with the SSM similar to that of the Timbisha Shoshone,

but the AS-IA in the finding does not describe that relationship or discuss how the precedent of these two cases impacts the SSM petition for acknowledgment. The SSM should demand the AS-IA provide it with all the evidence the OFA has regarding the SSM relationship with the NPS, fully describe the nature of that relationship, and give a full analysis of how it relates to the precedent established in the Timbisha Shoshone finding.

5. Is the AS-IA requiring the SSM to meet a higher standard of evidence for community under the 1994 Federal acknowledgement regulations than it would under the revised 2015 regulations?

In the SSM proposed finding, the AS-IA concluded the SSM did not provide sufficient evidence under the 1994 regulations to demonstrate that “a predominant portion” of the group comprised a distinct community from 1982 to 2011. The 1994 regulations describe the requirement for meeting community as follows:

(b) A predominant portion of the petitioning group comprises a distinct community and has existed as a community from historical times until the present.

Community means any group of people which can demonstrate that consistent interactions and significant social relationships exist within its membership and that its members are differentiated from and identified as distinct from nonmembers. *Community* must be understood in the context of the history, geography, culture and social organization of the group.

The OFA always interpreted the predominant portion to mean more than half, although it was never clear to me during my tenure at OFA as to how it evaluated the evidence in a petition to reach a quantitative decision about what constituted a “predominant portion” of a group being a distinct community. Nonetheless, over the years, the vagueness of what the term meant and how the OFA evaluated it came under increased scrutiny and criticism. In July 2015, the AS-IA issued a revised set of regulations that tried to address that criticism and other criticisms of the 1994 regulations. In the revised regulations, the Department removed the “predominant portion” language from and revised the criterion to read as follows:

(b) *Community*. The petitioner comprises a distinct community and demonstrates that it existed as a community from 1900 until the present. Distinct community means an entity with consistent interactions and significant social relationships within its membership and whose members are differentiated from and distinct from nonmembers. Distinct community must be understood flexibly in the context of the history, geography, culture, and social organization of the entity. The petitioner may demonstrate that it meets this criterion by providing evidence for known adult members or by providing evidence of relationships of a reliable, statistically significant sample of known adult members.

As the reader can see, the new rules removed the requirement for a petitioner to demonstrate that a predominant portion of its members comprised a community. It also lessened the span of time needed to demonstrate the criterion from historical times to the present to 1900 to the present. The AS-IA explained the need for the change in the 2015 final rule:

The final rule requires the petitioner to constitute a distinct community, and provides that the petitioner may demonstrate this criterion by showing evidence that a “significant and meaningful portion” of its members constituted a community. *See* final § 83.11(b)(1). While the proposed rule

included a specific percentage [30 percent] in an attempt to set an objective standard, in reality, the number of members who must constitute a community depends on the historical circumstances faced by the petitioner. In practice, there is a range in which the Department has identified whether the petitioner's members are a distinct community.

Clearly, the AS-IA believed under the new rule that a range of community participation might allow a petitioner to meet the community criterion depending on the historical circumstances of the group. That range would be evaluated not as a fixed percentage, such as 51 percent, but as a flexible standard dependent on those historical circumstances. Thus, in the case of the SSM that range of a "significant and meaningful portion" of the group could be much lower than 51 percent, perhaps 30 percent, or even less. Indeed, the controlling factor for SSM to meet the criterion for community would not be the percentages of its community activity, but how the Department viewed the significance and meaningfulness of that activity in light of the group's historical context. Under this flexible standard of evaluation, SSM would have a reduced burden of proof both in terms of the level of evidence, which could even include the results of statistical sampling, and in the time frame under evaluation. The Department would also have to apply that reduced standard.

The 2015 regulations also supersede the 1994 regulations and other directives that apply to the substance of the regulations. Under the 2015 regulations, the AS-IA would have to rule on all seven of the mandatory criteria in a series of phases, first on four of the criteria, and then on the remaining three, with the OFA providing technical assistance after each phase. A one criterion finding on just community is simply not permissible under the 2015 regulations. The other six mandatory criteria also have significant differences (as does the requirement for unambiguous previous Federal acknowledgment) under the 2015 regulations from the 1994 regulations. In addition, the 2015 regulations provide for an administrative law judge to review findings and a more transparent process overall, which requires the posting of evidence, comments, and findings on the OFA website at every stage of the process.

While it is true the SSM, as a petitioner already under active consideration, chose to be reviewed under the 1994 regulations rather than the 2015 ones, it was unclear to me while I was a member of the OFA that the group, or any group which chose the same option, understood the implications of that choice. Simply put, the AS-IA has established a two-tiered Federal acknowledgment process, one in which some older petitioners are unwittingly, arbitrarily, and capriciously being evaluated under a stricter and more burdensome standard of evidence than newer petitioners. The SSM should demand, as a matter of fairness and equal treatment, that the AS-IA and the OFA evaluate its petition for all seven of the mandatory criteria under the 2015 regulations.

6. Have the Solicitor's Office and the OFA engaged in behavior detrimental to the SSM and its petition?

During my 16 years at the OFA, I was aware of improper ex parte communications by the Office of the Solicitor on acknowledgment findings under Solicitor review. These communications occurred between the Solicitor's Office and OFA staff members not working on those findings. The OFA rules regarding the peer review process were clear. After a finding completed the OFA peer review and went to Solicitor review, the Solicitor's office was to communicate only with the OFA director or with members of the team who had worked on that finding. The Solicitor was not to communicate, lobby, or try to influence any other members of the OFA staff, or any other office, regarding the merits of the case. This rule was flouted repeatedly by the Solicitor's office as it did communicate with OFA staff members to change, influence, or call into question decisions made during the OFA peer review. This behavior continued while the OFA was evaluating the SSM petition and others. Such behavior tainted the peer review process, cast doubt on its legitimacy, and violated the rules of transparency required by the Department for the acknowledgment process as a whole. The SSM should demand to know if any members of the Solicitor's Office or the OFA had ex parte communications regarding the SSM petition, and if they did, the group should request a full reconsideration of its finding.

Gordon M. Schoepfle
 2185 Greenkeepers Court
 Reston, VA 20191-3844
 703/758-0784

March 21, 2019

The Honorable Tara Sweeney
 Assistant Secretary – Indian Affairs
 Department of the Interior
 1849 C Street, N.W.
 MS-4660-MIB
 Washington, DC 20240

Re : Petition of the Southern Sierra Miwok for Federal Acknowledgment

Dear Ms. Sweeney:

This letter is in comment to the *Proposed Finding against Acknowledgment of the Southern Sierra Miwok Nation*, of November 16, 2018 (PF). I am a retired staff cultural anthropologist who earlier served as part of the evaluation team of the Southern Sierra Miwok Nation (SSM). I am therefore familiar with the evaluation research conducted with the petitioner. However, I will limit my comments to the above referenced document itself in general administrative context, and hope this letter is sufficient to reflect my disassociation from whatever processes led to this November 16 document.

My first comment involves the application of the single-criterion evaluation, along with the restriction that concentrates only on the “present” period within the evaluation. A single-criterion evaluation is allowed under the Departmental Directive of May 23, 2008. The Directive explains that such an evaluation can proceed “[i]f during the evaluation of a petition on active consideration it becomes apparent that the petitioner fails on one criterion, or more, under the reasonable likelihood of the validity of the facts standard [after] setting forth the evidence.” The directive makes explicit the evaluation under a single criterion, and was recently applied to the Tolowa Nation petition. However, the Tolowa Nation evaluation involved the whole historical context of 25 CFR 83.7(b), not just “the present.” Nowhere does 25 CFR 83 define the term “present.” Such a definition would be unnecessary, most likely, because the term is used throughout the regulations either as a historical endpoint or a single instance in time, not as a duration of time within which to evaluate a petition.

In general, providing historical context allows a more informed evaluation of the evidence under review. If this historical context were provided, the arbitrary establishment of the date of the petition’s receipt as the beginning of the “present” would be unnecessary. Instead, the petition’s evaluator could analyze the “present” as a flexible period as indicated throughout the regulations. It is, more realistically, a period of time recalled from the individual petitioner members’ direct experience. Some of the petitioner’s members were born as early as the 1920s, while others were born in the 1990s. This range of recalled eyewitness experience would be particularly important in any evaluation. Interestingly, the PF began its criticism of the petitioner from 1971, not 1981. The reason given was “[t]o lay a factual foundation for continuity and the evaluation of community at present.” Evidently, even the PF could not rely on its own date.

My second comment involves the PF's review of social interaction, which selected restricted examples of social interaction. On page 19, for example, the PF selects one quotation from a speaker regarding the effects and seriousness of drinking from their own experience. The PF then comments that the interview "did not discuss any particular issues or specific conflicts that may have been the cause of these disagreements to show that the group followed specific steps in resolving conflicts that the member supported." Why the PF included this one particular quote when it had at least 22 interviews from which to choose is a mystery. For example, the quote suggested that the issue for the speaker was how important the Bear Dance and Spiritual Walk were for clarifying individuals' sense of life purpose. While certainly not serving as strong stand-alone evidence for social interaction, it could serve as part of a body of evidence showing that this Bear Dance and Spiritual Walk were more than simply commemoration. See 25 CFR 83.7(b) for further information.

Thus, the PF gives the impression that the OFA staff simply selected a small sample of specific interview quotes, apparently without examining all of the information reportedly available. It is unlikely that the quote referenced in the PF was the only one available for OFA analysis. Each of the 22 interviews was recorded as part of the site visit I conducted during June 2011. As is my standard operational procedure, I recorded each one. Then, upon my return to OFA I copied and provided CDs of each interview to each individual with whom I interviewed. Then, I transcribed significant portions of them for analysis in the evaluation. In accordance with FOIA the only entities to whom I provided a complete copy of the interview, were to the OFA SSM team and these individuals. Thus, they were readily available to OFA staff for verification and analysis

I have refrained from discussing the evaluation process as it pertains to this petition. However, I do not feel that it is in my best interests to be associated with the evaluation processes suggested by this sort of OFA-originated document. It is not the kind of documentation that I remember as typical of the OFA for which I was employed.

Sincerely,



Gordon M. Schoepfle, PhD, Cultural Anthropologist (Ret.)

cc: William H Leonard

From: Mark A. Nicholas, PhD

RE: comment letter SSM PF Issued by AS-IA

Dear sir:

Please find attached my comment letter that I sent to AS-IA regarding the proposed finding (pf) for the southern Sierra Miwuk Nation. I apologize for it being less formal. I don't have access to a printer at home. I would like to add a couple of things. You can attach this email as a cover letter if you would like. I am not a disgruntled employee. I was happy to leave OFA, for all the reasons stated in the letter. I cannot work for an office that cannot achieve its mission. That is not the purpose of civil service. I will say that these concerns that I had, as expressed in the attached letter, and as related to SSM and other groups going through the process, concerned me so much that I put them in a resignation letter I submitted to Mr. Lee Fleming. I didn't mention SSM by name, but did mention another group, then Grand River Band, who is confronting similar issues with the process. I will be commenting on that PF as well, when it is released. I also visited the DOI inspector generals office. I rescinded my formal complaint at the time, for fear of retaliation by OFA. But I might be able to find my emails to them, if you need them down the road. I was going to the Inspector General for all the reasons stated in my comment letter which is attached to this email. I feel very strongly about these issues with the process.

With that said, I wish SSM the best of luck with at least getting a fair review under the seven mandatory criteria. If I can be of further service with this effort, please don't hesitate to contact me.

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To: Assistant Secretary-Indian Affairs
 Department of the Interior
 Washington, D.C.

From: Mark A. Nicholas, PhD

Comments by Dr. Mark A. Nicholas, on the Proposed Finding for Southern Sierra Miwuk:

Introduction: The Office of Federal Acknowledgment (OFA) assigned a team (referred to as the SSM team) comprised of three staff members -an anthropologist, genealogist, and historian -to work on the proposed finding (PF) for the Southern Sierra Miwuk Nation (SSM). The Assistant Secretary of Indian Affairs (AS-IA) issued a PF after considering OFA's recommendations. In the case of SSM, AS-IA issued a negative PF against acknowledging the SSM group as an Indian tribe under Federal law.

I worked for OFA for three years, from 2014-2017. I received my PhD in history from Lehigh University in 2006, and came to OFA after years as a recognized expert in the field of American Indian history. I taught American Indian history at multiple universities, and also trained and mentored graduate students in the field.

I left for many reasons. The main reason was that I felt like the office, as a whole, was not achieving its mission, and had no real urgency to achieve its mission. That lack of urgency trickled down to the OFA Director, Mr. R. Lee Fleming, who allowed for continuous extensions on projects. The lack of urgency, from my experience at OFA, severely impacted groups like SSM, who continually received extension letters. When I was there, staff could take as long as they felt they needed on finishing drafts of PFs; so it did not surprise me at all to see the numerous extension letters issued to SSM. It is not only frustrating for groups like SSM, but also a complete waste of taxpayers' dollars.

1) When I worked at OFA, the "Peer Review Process was broken:

OFA will make the argument that its staff, by utilizing historical, anthropological, and genealogical research methods, has given SSM an objective and fair assessment of its claims and evidence under the seven mandatory criteria. And yet, in my experience, OFA does not have anything resembling a fair and objective peer-review process, much less a structured one. There were no written rules or guidelines that Mr. Fleming insisted that we follow. With the peer reviews which I attended, the process began when the team circulated a draft of their work, which was followed by a staff meeting where we discussed the team's draft, while providing our edits/comments. Oftentimes, the meetings became hostile because of one disruptive staff member who chose to hijack most meetings to grandstand, which usually forced teams into a defensive posture to explain their reasoning and analysis. At my first "peer-review" the one staff member became so hostile, that I felt threatened. I sent emails to Mr. Fleming about my concerns. There were two or three "senior staff" who basically controlled the process. In the staff meetings, as well as the final drafts of the PFs, senior staffs' views and opinions, more often than not, drowned out and/or replaced those of more junior staff. **When I was at OFA, there was one senior staff member who was allowed to rewrite entire PFs and sections of PFs, that had been written by other teams and/or other disciplines. Mr. Fleming justified it as "peer-review edits."** It was more than that. This staff member rewrote the sections of staff historians.

When I was at OFA, some of us (rightly) spoke up against the current state of peer-review, and how it inhibited fair and objective discussion. We also made the argument that in allowing one senior staff member to rewrite everyone else's work violated the spirit of the regulations and most certainly challenged the whole idea that OFA's PFs were the products of interdisciplinary teams. Based on my experience, OFA's version of "peer review" had all the elements of a toxic and hostile work environment. When I was at OFA, nothing was ever done to address the many problems that made the "peer-review" process ineffective.

Conclusion: The above statements about OFA's claimed "peer-review" process leads me to one important point: AS-IA really cannot make the claim that SSM's claims and evidence got a fair and objective evaluation under the seven mandatory criteria, when the process that OFA calls "peer-review" is neither fair nor objective. **SSM should demand to know which staff members had any role in writing the 2018 PF, and demand full disclosure about what the peer-review process was like for SSM.**

2) AS-IA provides very little oversight of OFA, and the oversight that is provided by the solicitor is too invasive and contrary to the spirit of the Federal acknowledgment regulations that petitioner's will receive a fair and impartial review of their evidence under the seven mandatory criteria:

When I was at OFA, a lot of problems existed for two interrelated reasons: 1) AS-IA provided very little oversight when I was there, other than the solicitor's office. 2) Mr. Fleming had adopted a "hands-off" approach to overseeing all research and writing conducted by the OFA teams, at least that was the case when I was there as a staff member.

The solicitor's office was too involved in our research and writing. That the solicitor had too much of a role to play in editing our PFs became evident when I participated in "editing sessions" on the SSM PF. **The report was a pre-decisional-positive in favor of SSM.** The solicitor had read the draft and commented on it. We (Mr. Fleming, SSM team, and myself) were going through the entire draft, line by line, to address the solicitor's extensive comments on the teams reasoning and analysis. This was more than legal advice. In fact, the solicitor showed up at that session, and commenced to tell us (trained historians, anthropologists, genealogists), how to evaluate the evidence. A solicitor does not have the professional training to make any evaluation of the evidence, other than to provide legal advice. Still, Mr. Fleming insisted that the SSM team make the recommended edits to the PF based on that meeting. I felt like the solicitor was trying to influence the process, possibly turning a positive PF into a negative recommendation.

Another example of the solicitor being too involved in our work during my time at OFA, was the relationship between the solicitor's office and with the same "senior" staff member who rewrote findings. That staff member had extensive communications with the solicitor's office, concerning what went on in peer review, and concerning other staff members and the findings they were working on that were still in draft form.

Conclusion: SSM should demand to know the extent of the involvement of the solicitor's office in the SSM review process, and if communication took place at any point during the review process between the solicitor's office and the senior staff member.

3) At some point during OFA's lengthy review process (8 years?), enough evidence to reach a positive determination became not enough evidence and a negative determination What happened? What did it take so long to issue a PF on a portion of one criterion (b)?:

When AS-IA released a negative finding, I was surprised to read an evaluation of one criterion (b) and only one portion of that criterion (b), when other drafts that I had read and worked on in an editorial capacity, were not so limited in their reasoning and analysis. AS-IA's release of a negative PF under only one portion of criterion (b) violates the whole purpose of the Federal acknowledgement process.

That OFA had worked extensively on a pre-decisional-positive in favor of SSM means that the 2018 negative PF issued by AS-IA is a very, very misleading PF, and by no means a fair representation of the extended evaluation of the group under all seven mandatory criteria that OFA had conducted over the years. Is the current AS-IA even aware of the amount of time OFA spent on evaluating SSM, and the amount of evidence the group has submitted over the years? Is the current AS-IA aware of all the pre-decisional drafts written by the previous team that came to an affirmative decision?

After my evaluation of the evidence and reading the draft, it was clear to me, and to others in the office, that SSM's claims and evidence met the reasonable likelihood standard. The SSM team had done a tremendous amount of work on the pre-decisional positive PF based on thousands of pages of acceptable evidence submitted by SSM and found by OFA staff during the review process. To highlight some examples:

- The SSM team had reconstructed the historical Indian tribe using the park service censuses
- I evaluated this park census data when I arrived at OFA, and talked extensively about it with two of the other staff historians and the anthropologist from the SSM team.
- Based on all the evidence we had at the time, the historians were also comfortable granting SSM unambiguous previous federal acknowledgement.
- Mr. Fleming also found court cases from the 1880s-1890s that talked about some of the Indian ancestors of the current petitioning group.
- When I first joined OFA in fall 2014, Mr. Fleming pointed to the court cases as an example of staff doing really good research to supplement the record in the absence of evidence from the petitioner.

- He told me the court documents helped alleviate some of his concerns about the park census data used to reconstruct the historical Indian tribe.

Conclusion: Why was none of this evidence evaluated in the 2018 PF? The negative PF issued by AS-IA seems to indicate that there was not enough evidence to draw any conclusions about the historical Indian tribe, unambiguous previous federal acknowledgment, etc. I know, for a fact, that there was enough evidence to evaluate SSM under all seven mandatory criteria.

Summary:

SSM should demand answers to the following questions: What was the peer-review process like when the earlier drafts of the SSM PF were circulated among staff? Were the staff meetings fair and objective? How long did they last and how many were there? Was there vote taken on whether to grant SSM federal acknowledgment? How many staff members actually wrote the current negative PF? How many staff worked on and wrote the pre-decisional drafts? How long did the writing process take with pre-decisional drafts versus the writing process with the negative PF? What role did the solicitor play in the editorial sessions on the pre-decisional positive PF? And why was a positive PF, containing very robust and sophisticated analyses of all seven mandatory criteria, turned into a negative PF that evaluated only a portion of one criterion?

In conclusion, SSM should demand another PF issued by AS-IA that evaluates the group under all seven mandatory criteria. In the reviewing of the evidence for this new PF, SSM should demand 1) that AS-IA form a professional team of outside experts to come in and evaluate the evidence and provide OFA the oversight it so desperately needs. Another option is to bring in professional experts and that OFA have no involvement whatsoever in reviewing the SSM petitioner from this point forward. 2) That the group be allowed to go under the 2015 regulations.

Respectfully submitted,



Dr. Mark A. Nicholas

Cc: Stephen V. Quesenberry Legal Counsel for Southern Sierra Miwuk Nation