

# **The Effects of Fire on the Klamath Basin**

## **Traditional/Prescribed burning & Wildfires**

Anthony Ulmer

June 16-August 21, 2014

Klamath Basin Tribal Youth Program



### **1. Abstract**

Wildfires, Traditional Burning, and Prescribed have been a way of shaping the landscape of the Klamath Basin for thousands of years. I've been researching these subjects for the past summer during my internship for the KBTYP (Klamath Basin Tribal Youth Program). In my time spent up and down the Klamath Basin I have found a great interest in fire, so I decided to write my report on it. This report will detail information about the different types of burning and how each one has a different effect on the climate of the Klamath Basin. It's been a great experience for me and I have learned a lot from different agencies and people such as, tribal governments, tribal elders, fish and wildlife, people from various communities, and research papers. This report will mainly focus on what's going on now and how things could be possibly changed in the future.

## 2. Introduction

Traditional burning, prescribed burning, and wildfire have all played a big role in changing the landscape of the Klamath Basin. In more recent years, wildfire has dominated the press because of the unforgettable damage it can do and has caused in the past to different communities up and down the Klamath Basin, especially in areas like Orleans, Hupa, and Weitchpec, California. In remote areas such as these, fire crews and resources are often hours away, resulting in the destruction of the forest and resident structures in the community. These fires are often sparked by lightning strikes or by human cause, either by accident or on purpose by arson. With climate change happening increasingly fast, temperatures are reaching an exponential high level, and accompanied by lower snow packs, the impacts of these fires have been getting dramatically worse and more frequent over the last few decades. Wildfires are becoming more frequent and burning very severely, meaning that they kill higher numbers of trees and soil composition a couple of feet from the ground down, preventing regrowth. This is mainly due to the prevention of traditional burning by the indigenous people of the Klamath River for the past 100 years. Indigenous peoples managed the land through traditional burns for thousands of years prior to European settlement in North America, but by making such burns illegal, and through campaigns such as “Smoky the Bear”, there is now a widely held conception that all fires are bad. Such widely held fears have made it almost impossible for the indigenous people, who did these practices regularly and traditionally, to continue what they have been doing for generations. The separation from these cultural practices have wounded the indigenous people along with the Klamath Basin landscape in a deep spiritual way, forcing them to deconstruct their spiritual grounds.

There are many steps that can be taken to preserve this land, and with climate change and drought conditions continuing to get worse, it is important that these issues are addressed as soon as possible. With fire groups such as the ones in Orleans, steps are already being made. Along with dam removal planned for 2020 there is progress and hope for these communities of people living along the river. Nevertheless, the ecological devastation is evident in the rivers and forests, with algae blooms growing, fish kills continuing to happen, and wildfires devastating the land each year. An important step is implementing fire back into the landscape, in a process called prescribed burning.

Agencies do not always consider the perspective of the Tribal communities, leaving out important outreach, education, and collaboration. There have been some traditional burns, such as in 2014 of mid-June in the Weitchpec and Pec-wan area. Most prescribed burns today are implemented for fuels reductions, and so may not be for the benefit of plant and animal reproduction and productivity. Whereas a traditional burn could consider different factors, such as the time of year and burn intensity, prescribed burning is done mostly for fuels reductions to prevent wildfires. Often burning more severely than desired, and constrained by budget issues, fuels reduction burns have different priorities and results than traditional burns. While there are many factors to look at in the future of the Klamath Basin, it is clear that traditional fires need to be put back into the landscape and not just on a small scale. These fires need to be taken into consideration by all aspects of peoples- Tribal Governments, federal agencies, resource managers, and the people of the communities in which these practices will be held. With climate change and drought conditions the way they are, these practices must be implemented back into the landscape for a chance of a successful future for the next generation and generations to come. It's time to put differences aside and have everyone come together for the greater good.

This is especially important to me since I have grown up on the Klamath River, living on and off the Yurok reservation my whole life. Even while I went to high school in McKinleyville, California, I always came home to the Klamath. I have been fishing at the mouth of the Klamath River ever since I was considered old enough to do so, around 11, watching before that. While wildfire isn't as big as a concern in Klamath as it is in upriver communities where it's more dry and hot, this internship has showed me how important fire is to the people of the Klamath River and how it impacts all aspects of life including fishing, which has been close to me from a young age and will always be a part of my life and heart. Fire must come back to the Klamath River for a proper chance of reconstructing it to a state of its prior beauty, and integrating tribal members and traditional burns is an important part of this.

### **3. Methods**

Ideas, plans, and research for this document came from various sources. Over the past two months I have been spending time up and down the Klamath Basin, doing research, and learning from various agencies, such as Fish and Wildlife agencies and tribal governments, in addition to elders and community members from different areas of the Klamath Basin, as well as working with Frank Kanawha Lake, a research ecologist with the US Forest Service Pacific Southwest Research Station's Fire and Fuels Program, as lead on the project. These different perspectives combined traditional economical knowledge (TEK) and western sciences, along with personal beliefs of individuals and knowledge gained from my own life experiences growing up on the Lower Klamath River, this allowed me to see how the impact of various areas affected all the ecosystems up and down the Basin and how they're connected. Along with personal knowledge gained from experiences from the summer internship with talking to various people, research done from the internet and various articles will also be used to back up points being made to show why fire is such an important aspect of our forests and ecosystems. While there are many variables when it comes to getting information from such a diverse group of different people and different beliefs, this paper will reflect the best understanding that I have at this point of various types of fires in the ecosystem.

### **4. Results**

Wildfires are becoming a catastrophic occurrence on the Klamath Basin more than ever now, especially with climate change and heat temperatures rising so dramatically. "Restoration of historic fire regimes is essential if we hope to retain our forests and their stored carbon in the face of climate change" (Harling 2014). It's seeming to be an every year occurrence on a large scale. "Research in the last several years has indicated that fire size and frequency are on the rise in western U.S. forest" (Miller 2010). With these issues of wildfires there is a major sickness in the Klamath Basin region and one that will not be taken care of overnight, or even over the course of several years, which a lot of community members from these areas have been battling since the suppression of fire.

The suppression of fire that has been occurring here in the Klamath Basin since 1911 because of the Smokey the Bear campaign that started because of the 1910 fires (Tripp 2014). Traditional fires weren't suppressed for the Klamath River people till 1932 (Tripp 2014). These areas were meant to be burned at certain times for different reasons the time traditional burns weren't implemented was during the spring time from March to June other than that fires were burned in different spots for different reasons (Tripp 2014).

Now we have got ourselves in a predicament that is so dangerous and if it is not treated correctly our forest could change completely. "Hazard fuels reduction is a main priority for our forest. For all of our plans on the Six Rivers National Forest, there is some component in fuels reductions. We realize that if we don't treat these landscapes, it won't be long until they all burn up. We don't want that." (George 2014). These massive fires that burn too hot from the suppressing of fire for so long can become so severely hot that they change the landscape in which indigenous people hunt, gather, and practice spiritual awareness. It can effect it so dramatically that it changes what lives and dies there and a way of this is how it can destroy the soil that is underneath what is growing. "Supporting evidence included profound changes in soil properties in some stands subject to high-severity fire, where combustion temperatures over 660 degree C and convective erosion in the fire's plume apparently contributed to losses of about 2.5 cm of fine mineral soil and one-third of soil nitrogen (N) and half of soil carbon (C)" (Halofsky 2011). It is not really known what impact this has on the soil and it could change numerous of things that we don't understand yet. "However, the long-term consequences of these soil changes remain unclear, and it is possible that N-fixing shrubs (e.g. *Ceanothus*) which are often abundant in this region following sever fire could help offset losses in some areas" (Halofsky 2011).

Some more reasoning of why these forest fires are so massive is because of how the land is untreated in most areas and a lot of the fire fuel comes from tress that have already fallen and not been cleared out or have fallen and there is just too much of an abundance of them, which means they spread and carry the fire on to the next tree and landscape. "This, combined with the fact that dead surface fuels have higher combustion efficiencies than do standing live components, meant that nearly 60% of the estimated 3.8 Tg C released to the atmosphere during the Biscuit arose from surface fuels" (Halofsky 2011). These surface fuels can be extremely dangerous. "A rain on snow event in 2005 caused up to one acre patches of tan oak forest to fall down, creating a serious fuel hazard next to homes at Butler Flat" (Harling 2014).

With massive fires such as the Biscuit Fire of 2002 shows how the fire could be spread and spread so rapidly. "the 200,000-hectare Biscuit Fire of 2002, the largest fire on record for the state of Oregon and one of the largest recorded forest fires in the United States" (Halofsky 2011). One example, stated by J.D. Miller is, "The Success of fire suppression has, ironically, fostered changes in the composition and structure of many ecosystems that are among factors believed to contribute to the current increases in burned area" (Miller 2010). "In the absence of controlled fires these large fires are going to pertain" (Catching Fire 2012).

While fires are looked at by the majority of people to be a bad thing, this is just a misunderstanding of what fires are good and which ones can be bad, coming from the idea that all fires are bad and the misconception of Smokey the Bear campaigns and peoples fear of fires. But as long as this landscape is not affected by good fire these terrible wildfire fires will continue to persist and in coming years will most likely get worst because of global warming and drought factors. "Especially in regions of pronounced annual summer drought, the warming induced by climate change will likely increase the duration of the fire season and the drying of fuels, thus increasing the potential for ignitions and higher fire intensity" (Miller 2010).

Now we are affected by wildfires more than ever in the past. "In the early part of the 20<sup>th</sup> century, lightning accounted for around 42% of area in all recorded fires, but by the end of the century, 87% of area burned was caused by lightning" (Miller 2010). The forests that surround us now are an example of the past and how it has affected our minds to adapt to the future. "The current American landscape represents the historical legacy of one worldview super imposed on

another, the colonial overlaying the indigenous” (Kimmerer 2001). These are actions that were brought upon us to believe in and we are all now deeply affected by what was done in the past. “Indeed, multiple lines of historical and contemporary evidence tell us that over the long term, changes in fire activity can primarily be explained by broadscale changes in climate, moderated by local changes in vegetation, fuel conditions and human activities” (Miller 2010).

Traditional burning has been a way of life for the indigenous people of North America for thousands of years and has helped shaped the landscape in many different ways, in such ways that would benefit not just human way of life by the health of the ecosystem as well. “Importance of fire can’t be overstated as a management to manage the landscape and same has been true for thousands of years” (Catching Fire). Elders speak of how important it was as a way of life to them and ancestors of them. “My Grandmother had always looked forward to burning season. She said it was a tool for renewal for the livestock, wildlife, gardens, herbs, and gathering materials, and to clean out the underbrush in case of lightning storms. It was always uncanny how she time her burns just before the rain.” (Walt Lara). He goes on to stat how important of this way of life it was to them not just for burning but for all aspects of respecting mother year. “I have always been taught to respect the forces of nature. I believe that those who work effectively in forest fire management understand this concept. I also believe that this understanding comes from our experiences and the teaching of our ancestors” (Walt Lara).

These types of practices weren’t just practices of the Klamath River people but the indigenous people from all over North America, this shows that the connection with fire was a universal thing that various indigenous people understood and respected. “Indigenous burning was the most important prehistoric land management tool, causing cumulative and very likely permanent effects on the vegetation. Therefore, many of the pristine habitats that are now set aside as natural or wilderness areas in protected status, are already altered landscapes which have evolved with frequent Human disturbance” (Anderson 1994). These burns were used for various reasons and played a very big role in the daily life of the indigenous people’s survival on their land. “Over 75 percent of the plant material culture of California Indian tribes depended upon the use epicormic branches or adventitious shoots (also known as "sprouts" or "suckers") from a diversity of native plants. Ten cultural use categories required these special types of branches: baskets: ceremonial items; clothing: cordage; games; musical instruments; snares, traps, and cages; structures; tools, and weapons” (Anderson 1994).

Some other uses of these fires were that of killing off bad insects and preparing for next year’s crops of useful materials. “Fire burn up old acorn that fall on ground. Old acorn on ground have lots worm; no burn old acorn, no burn old bark, old leaves, bugs and worms come more every year. Fire make new sprout for deer and elk to eat and kill lots brush so always have plenty open grass land for grass. No fire brush grow quick and after while choke out all grass and make too much shade, then grass get sour, no good for eat. No fire then too much leaf stay on ground. No grass can grow up. Too much dead leaf, ground get sour. Indian burn every year just same, so keep all ground clean, no bark, no dead leaf, no old wood on ground, no old wood on brush, so no bug can stay to eat leaf and no worm can stay to eat berry and acorn. Not much on ground to make hot fire so never hurt big trees, where fireburn. Now White Man never burn; he pass law to stop all fire in forest and wild pasture...Klamath River Jack, 1962” (Norgaard 2014). These is a great quote for Klamath River Jack, one of my favorites, that explains a lot of the values to the people of the river towards burning.

There was certain people who did these burns, not just everybody was out there burning what they could and wanted it was an art form and was the responsibility of certain individuals.

“Elders recall a time when there were tribal fire specialists, known as ‘burners,’ who understood fuel conditions and knew exactly when to start a fire so that it would produce the desired results. Fire, central to Indian life and religion, is considered a gift from the creator” (Mason 2012). These people were trained in the art form of burning and knew when where and how to burn things, this was taught to certain people and was passed down for generations. “Western science is good at a lot of things, traditional knowledge is good at a lot more. There is a need to bridge the two” (Terrance 2014).

Some of these art forms of when, how, and what severity to burn had a big impact on what they were burning for, an example is to burn for Bear Grass a traditional material used for regalia, was burned at low temps and at certain times of year to make sure it would come back better and more useable for the next time harvested. Other aspects of burning was where you were burning at in lower elevations things would be burned every 1-5 years and in higher elevations different landscapes would be burned every 1-10 years (Tripp 2014). These had different impacts for what you were burning for. Either for materials or to clear out trails and for fuel reduction. This type of knowledge was passed down from generations and for certain areas had different burn regimens. This was the responsibility to the people of those particular areas and they are viewed as a right and a responsibility to carry on and do what’s right not just for their own survival and needs but for the survival of all living creatures and well-being of all. This was a respect towards mother earth that was understood but seems to have been lost along the way from outside influences.



Don L. Hankins- Picture of before and after prescribed burn.

The exclusion of fire has had a dramatic negative impact on the landscape. “(Ron) Reed said the exclusion of fire in the local landscape has had drastic health and social impacts on

Karuk people and their culture. Disease rates among his people are three and four time national averages for diabetes, heart disease, obesity and childhood obesity” (Terrance 2014).

Other impacts with fire is prescribed burning and the politics that come along with it. The fire industry has big money invested into it and if the forest were prepared for wildfires and they didn't happen on the regular basis a lot of jobs would be lost. Politicians can use fires for campaigns in influential ways by trying to look like there doing good by putting fire fighters into fire situations, when really fires are actually good for the landscape (Tripp 2014). Calling for a state of emergency and not taking tribal burning or knowledge into consideration at all to help their place in government (Tripp 2014).

An example of this is putting out fires or preventing fires from being traditional burned to create a smoke overhead that will help the fish and cool the water. These are things that the government over look towards tribal governments for their own benefit in running for government. The loss of fire can be contributed to the U.S. government. “The loss of fire in the American landscape is inextricably linked with the history of federal Indian policy that removed tribal people and, therefore, indigenous land management” (Kimmerer 2001). This is wrong in many ways considering that fire has been a part of the ecosystem for thousands of years. “Humans have been a part of the ecosystem over the past ten centuries of major climatic change, so that all forests have developed under some kind of human influence. This influence must be accounted for as an important part of any study of forest structure and dynamics” (Kimmerer 2001). The change came with the attitudes of the Europeans that brought it over with them. “Euro-Americans arrived in North America bearing their folk knowledge that held fire in forests to be destructive and hazardous to humans” (Kimmerer (2001). When they came fire disappeared relatively fast. “Anthropogenic fire all but disappeared from eastern forest by the early 1700s and from the West by 1899” (Kimmerer 2001). There is starting to become a change in the way things are being looked at, it took a 100 years of devastation but a majority of people are finally starting to see the devastation that has been created. “There is growing international recognition that ‘Tribal and indigenous peoples’...lifestyles can offer modern societies many lessons in the management of resources in complex forest, mountain, and dry land ecosystems’ (Mason 2012).

## 5. Discussion

Growing up on the Lower Klamath River fishing, eeling, and participating in other cultural activities have been a part of my life from a young age. Seeing changes in the ecosystem with my own eyes such as the fish kill in 2002, the green blue algae blooms and other devastations such as loss of important cultural species has affected my life and the way I live. It made me choose a path in knowledge and wanting to know why these things are happening to the ecosystem that I grew up in and how could I possibly make a change in them. One way was listening to people, especially elders who seen how the climate and river was before such devastation. Another way was taking a job with the Yurok Tribe education department, so that I could work with kids and possible give them a chance to know about what's going on and maybe spark an idea in their head to make a difference as well as learning from them and their experiences. These changes in my life came slowly but surely and one of the biggest ones was pursuing an education with trying to further my knowledge in western science in college along with learning whatever I could from the elders and community members. The Klamath River is a place that is very special to me and dear to my heart and, if I get the chance to contribute to making it a healthier place now for my people and future generations I will do everything in my power. It's my home and it means a lot to me, I don't want to leave it for something better but

instead make it a better place in which it can be enjoyed and appreciated for future generations to come after.

Fire can in fact have greatly beneficial impacts on the landscape, such as clearing out underbrush to prevent catastrophic wildfires. Today, the underbrush now acts like super fuel to these wildfires and make them spread faster and burn more severely. Furthermore, fires were used to clear out trails, aiding easier access to gathering grounds for hunting, basket materials, collecting berries and other useful plants utilized by the indigenous people. Traditional fires were used to burn off unwanted plants and provide good nutrients and soil composition for the next year of crops, including tan oak trees for acorn production, huckleberry patches, bear grass patches for basket materials, hazel stick production for new growths and straight sticks along with hazel nut production, along with various of others. These patches were burned in variation of years, example would be if you burned for some basket materials they would come back every 2 years, therefore patches were burned in offset years so there would be an abundance of basket materials every year (Hostler 2014). These fires didn't just benefit the plants that the indigenous people used, they would also benefit the wildlife, giving them an abundance of resources. Some wildlife were also culturally very important, such as the paleo redheaded woodpecker and the fisher, both of which are used in traditional dances and culturally important activities. Traditional practices are still enacted today and are an important way of life for Klamath River people.

Traditional fires also helped to prevent the occurrence and severity of wildfires by clearing out the underbrush, leaves, and duff, making it hard for forest fires to spread. The indigenous people understood this, and knew the best times of year to burn, for which resources, and at what temperatures. These were very beneficial fires that now have been suppressed for the majority of the past 100 years, causing catastrophic consequences for the landscape. Compounded by problems from timber companies which are looking for only profit and to re-plant what is most profited able and not take into consideration the cultural importance of certain tan oak trees and sacred sites to the indigenous people (Hostler 2014). Also hydro dams, and climate change play a major factor it shall be very difficult to heal our land and bring it back to historic conditions. The landscape can no longer go untouched and continue the devastation that is currently occurring in the homelands of the Klamath River people who still live here today and for generations to come.

With such devastation to the Klamath Basin ecosystem over the past 100 years from hydro dams, fire exclusion, and massive logging industries, the way of life for the indigenous people of these areas has changed dramatically. The landscape in which Klamath River people relied on for so many years is being change rapidly and without remorse do to European settlement hundreds of years ago and climate change. "With the imposition of European concepts of property and management, the ability of Indian tribes to continue cultural practice diminished" (Mason 2012). Changing in such a dramatic way that it is making it difficult to live in traditional ways, almost impossible too. There still is core values and traditions that have been passed down from generations but still the impact of the environment and the influence from the outside world has changed the culture in a way that would make it almost impossible to retain the way of life before pre-settlement of Europeans. These effects can be seen in everyday life from the addictions that people face, the poverty that has stricken almost every aspect of all the reservations across the nation. Even the tribes with money from casinos are hit because they don't know how to react with these changes and loss of identity of their culture. The loss of culture and knowledge that would have been passed down is very scarce now and is getting more and more diluted down with every generation who isn't taught the old ways correctly from their

ancestors. And in some cases what is being passed down could be incorrect or not exact. This is making it very difficult to bring back a culture for people who were so displaced from government ways and being terminated and sent off to boarding schools which taught there way of life is wrong.

Politics plays a big role in the way of life for indigenous people, the government has a lot of control over the way these sovereign nations get their money and what to do with that money. “Traditional fire knowledge systems are threatened by multiple stressors including shifts in the demography of traditional fire cultures, and use change, unsupportive policy, and climate change” (Huffman 2013). This shows how fire is controlled by the U.S. government and is only okay to burn if the government allows it to happen. This goes on to show that regardless to what we believe, Indian Tribes are still controlled by the U.S. government to this day and the laws that they make. They don’t seem to take into consideration of tribal knowledge because of how it is told usually verbally. “Case studies of indigenous people’s use of fire have led to mostly written recognition that it is rich and useful” (Huffman 2013). Because of this exclusion we’ve seen unprecedented forest events. “Fire exclusion and cessation of indigenous practices along with grazing, harvest activities, introduction of invasive species, development, pollution, recreation, and other factors have resulted in altered fire regimes, unprecedented forest fuel buildups, and increased incidence and severity of wild-fires” (Mason 2012). These fires can have a massive impact on our ecosystem on every level, one of which is changing the PH water level for our rivers and in return helping out the fish habitat (McConnell 2014).

I tend to think that fire played one of the biggest roles of our landscape more than anything. It helped with our berry and fruit production, acorn production, hunting grounds, clearing out trails, fire prevention from reducing fire super fuel, was used to send smoke signals, and produced basket materials for various types of vegetation as well as helping them river systems and creeks, which made for a healthy fish habitat. It also helped create patches of landscape that made it suitable for all types of life forms to survive. “The most important outcome of fire use was the intentional creation of mosaic of habitat patches that promoted food security by ensuring a diverse and productive landscape” (Kimmerer 2001). These patches would make it suitable for deer to get the shrubs they needed but then also get cover from predators when they would need to rest or hide their young. “For example, interspersed of low- and high-severity patches allowed for the persistence of birds that nest and forage in canopy foliage” (Halofsky 2011). Among just deer it created a mosaic patch area that was used in different conjunction by most wildlife forms.

Fire was a big part of the Klamath River people’s tradition and was very important to shaping the landscape with the exclusion of it for the past 100 years the knowledge of what it was used for and how and when it was used is known now by very few. With the epidemics that now plague the reservations up and down the river it’s hard to get the young generation to understand just how important it is to have fire in our landscape and how important it is to bring it back to possibly return our ecosystem to a prior state of what it was. This aspect of fire is very crucial for our survival of Klamath River people and if it’s not brought back along with other traditions it could be lost forever. Fire, language, spirituality, awareness of what’s going on around us is something that is very crucial to the survival of our people for future generations to come and needs to be implemented into everyday way of life. Not just when we choose or when we want to but to believe and trust in it every day. Traditional burning is a big aspect of this and without it the ways of our ancestors could be lost. Especially, with the aspects of climate change and how rapid this world is changing around us. As of right now, “Up on the Klamath National

Forest, we currently have some big fires that are happening. We have Incident Management Teams. We have a 24 hour initial attack, if the fire survives initial attack, we bring in external teams. Right now, in Yreka we have a Type 1 team- which is the biggest team you can order. They're designed for the biggest and scariest of fires. On the Shasta-Trinity we also have a Type 1 team. All around us there are fires. There's unprecedented dry conditions and there's not a lot of water" (George 2014).

## **6. Recommendations**

With how things are shaping up for future generations it is a very uncertain future for all of us. There are some things that seem pretty certain though, and that is if we don't make changes for our forest, watersheds, and landscapes the human race will put itself in a predicament that is so unforgivable that there will be major catastrophes occurring regularly. Changes in small communities seem to be happening but this isn't enough for the scale of the problem that we have on our hands. These problems need to be brought to the attention of big organizations and politicians alike, a lot of the money that comes to these groups aren't guaranteed and could change at any time. "I'm hopeful that we will start seeing more funding coming from Congress so we can do more fuels reduction work" (George 2014).

What I recommend is that awareness be brought to these issues, not just the issues of the fire problems but the issues the plague this Klamath River community up and down the river such as the Hydro-dams, fire issues, abuse issues, drug issues, and social issues that seem to never stop for the people living in these rural areas. Too many times it seems like people just don't care because it's not a part of their lives. But if we open up and come together we can help each other.

But when it comes to the issues of fire there are steps that need to be put into place. Such as coming together and listening to one another, putting differences aside and doing what's right for the communities that live here, getting the proper funding to fight these fires prior to wildfire instead of when they do happen spending tremendous amounts of money to put them out. If that money was put towards preventing these fires it would be a lot cheaper and a lot more affective.

Tribal thoughts and considerations need to be in place for these fires because it is the tribal communities who know a lot about these fires the best ways to deal with them. Not just over look what tribal elders have to say and deal with these fires in a standard fire procedure way. "Native Americans relied on fire to maintain a cultural landscape that sustained their life ways for thousands of years. Within the past 100 years, however, policies of fire exclusion have disrupted ecological processes, elevating risk of wildfire, insects, and disease, affecting the health and availability of resources on which the tribes depend. On Indian Reservations, tribal forest plans include prescribed fire to restore and maintain the lands" (Mason 2012). A lot of the time these perspectives come from outsiders who don't know the area or what areas are spiritually important to the people. So for there to be a successful future in the fire management in these forest we need to come together and do what is correct and right while taking everyone thoughts and opinions into consideration.

## **7. Conclusion**

In conclusion fire is a big part of the Klamath Basin and will be for years to come as it has been for generations before. It can shape our landscape in a good or negative way. What we do from this point on is going to play a big factor on the landscape we leave for generations to

come. With climate change and drought conditions getting worse every year, it is now more critical than ever to do what is right and correct for mother earth or else she will be fed up and say enough is enough. Fire is here to stay and we must do what is proper for the landscape to become healthy again, if we do not, our way of life will change dramatically along with the resources that are gifted to us from mother earth. The time has come to make a difference and put aside the differences that we have as individuals to do what is right not just for ourselves but for the well-being for all creatures that inhabit this planet. Not for money or greed but for the survival of our forest, way of life, and the survival for generations of people to come after. If we don't do this now and make the changes that we need too it can become a very unforgiving future for all of us. Now is the time to implement traditional fire back into our ecosystem but not just fire, all the support and help mother earth needs to give her the care and love that she deserves from all of us.

### Bibliography

- B. McConnell (personal communication, August 12, 2014) gave insight about fire knowledge and experience from his work at the Yurok Tribe and time spent researching traditional burning.
- B. Tripp (personal communication, August 4, 2014) gave insight about fire knowledge and experience in his field of work from years working with Karuk Tribe.
- Halofsky, J.E., Donato, D.C., Hibbs, D.E. (2011). Mixed-severity fire regimes: lessons and hypotheses from the Klamath-Siskiyou Ecoregion. *Ecosphere*, [www.esajournals.org](http://www.esajournals.org).
- Hankins, D.L. (2013). The effects of indigenous prescribed fire on riparian vegetation in central California. 1-9. <http://dx.doi.org/10.5849/jof.11.006>.
- Harling, W. (2012). *Catching Fire: Prescribed Burning in Northern California dvd*.
- Harling, W. (2014). 2013 Wildfires: A Success Story. *Mid Klamath Watershed Council*, 10-12.
- Hostler, J. (personal communication, August 14, 2014) gave insight about fire knowledge along with traditional ways of elders and how fire helped in all aspects of life for Klamath River people from his work with Yurok Tribe and being a traditional person.
- Huffman, M. (2013). The Many Elements of Traditional Fire Knowledge: Synthesis, Classification, and Aids to Cross-cultural Problem Solving in Fire-dependent Systems Around the World. <http://dx.doi.org/10.5751/ES-05843-180403>.
- Kimmerer, R., Lake, F. (2001). The Role of Indigenous Burning in Land Management. *Maintaining the Mosaic*. 36-40.
- Lara, W. (2014). Blacksnake's Corner. 15
- Mason, L., & White, G. (2012). Listening and Learning from Traditional knowledge and Western Science: A Dialogue on Contemporary Challenges of Forest Health and Wildfire. 187-93. <http://dx.doi.org/10.5849/jof.11.006>.
- Miller, J.D., Skinner, C.N., Safford, H.D. (2012). Trends and causes of severity, size and number of fires in northwestern California, USA. 184-203.
- M. George (personal communication, August 7, 2014) gave insight about fire knowledge along with work personal work experience and insight of being successful in school and work.
- Terence, M. (2014, April 22). Challenges Discussed at Orleans Fire Ecology Symposium. *Two Rivers Tribune*. 4&16.