Cultural Resources Specialist Report

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Somes Bar Integrated Fire Management Project: A demonstration project for the Western Klamath Restoration Partnership

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Project Overview: The Somes Bar Integrated Fire Management Project

The Somes Bar Integrated Fire Management Project (SBIFMP) is a demonstration project for the Western Klamath Restoration Partnership (WKRP). The WKRP is a combined agency - local organization - Tribal initiative designed to promote cultural environmental management practices for the restoration of the landscape to its ancestral state. The current project (the SBIFMP) is the first concrete step towards restoration along those principles. The project contains four focal areas, known as Donahue Flat, Patterson, Rogers Creek, and Ti Bar, which cover ~5500 acres in total (See figure 1). The treatment of the focal areas will allow the reintroduction of prescribed burning. The accomplishment of this goal will in turn revitalize traditional ecological knowledge, practice, and belief systems. The reintroduction of fire as a cultural environmental management practice promises to mitigate if not remediate the era of wildland fire exclusion, as well as to promote the cultural use species traditionally utilized across the landscape.

This report describes the Cultural Resource surveys done as part of the National Environmental Policy Act regulatory process. These surveys have been co-directed by the Six Rivers National Forest (SRNF) and the Karuk Tribe (the Tribe / "we"), and have been designed collaboratively by the SRNF and the Karuk Resources Advisory Board in order to identify the cultural use values to be promoted by the project, and to assess any potential environmental impacts or adverse effects to potential historic properties. The Tribe and the SRNF are key partners in the Western Klamath Restoration Partnership. This report explains the survey methodology, the affected environment, and outlines the environmental considerations and potential effects of the proposed actions. It considers two alternatives: the No Action Alternative and the Proposed Action alternative. The latter part of the report reviews the potential impacts of the project actions; the first part of the report sets out in some detail how the cultural resource considerations link to the proposed actions and the purpose and need of this project.

The overall project purpose, as stated, is to "Demonstrate the reintroduction of fire as a step towards restoring and maintaining resilient ecosystems, communities, and economies in the interest of revitalizing balanced human relationships with our dynamic landscape". (Summary of Proposed Actions). The proposed action of the project is to conduct fuels reduction treatments in order to restore fire within the focal areas. Within the planning stage of the project, some locations have been identified as high priority areas for the fuels thinning and preparatory work. These include defensible space, access/egress routes, ridgetop shaded fuel breaks, understory burn areas, and

firelines. These actions aim at the stated purpose of resilient communities. The work involved in executing those actions will provide jobs, living wages, and a more resilient economy in this rural area. The main focus of this first part of the report is to set out how the reintroduction of fire will achieve the other main purpose: a resilient ecosystem. This involves not just community protection, as stated above, but also the wider goal of the restoration of cultural use species.

The four focal areas in themselves protect private property and egress routes from wildfire; on a broader scale, they have been selected for their strategic value in protecting the community of Somes Bar, while enabling greater social license to restore the cultural burning practice of burning Offield Mountain as part of the Pikyavish World Renewal Ceremony at Katimiin. As an integrated focus, there are resource-rich areas utilized by traditional families with considerable working knowledge about the productivity and management of these resources, their uses, and the associated human responsibility.

The ultimate goal is to expand these actions beyond the Somes Bar IFMP and to apply the lessons learned, practices employed, and intergenerational knowledge accumulation gained through the implementation of this project to the whole Aboriginal Territory of the Karuk Tribe, the greater WKRP Planning Area, and to any community that wishes to live responsibly for millennia as a people of place.

Traditional Ecological Knowledge (TEK) and Landscape

Stories are the primary means for passing down Traditional Ecological Knowledge, and govern its interpretation and use. They are told in winter, and require complete attention when they are told. They also function as medicine in themselves. Stories have positive, healing properties. They recite the origins of medicine, and link the people today to Ikxareyavs - the Spirit People. Everything in the world - the mountains, the trees, the animals, came from the Spirit People. Only some of them became modern-day people. The stories link people of today to the ancestral ties of duty towards the whole environment and to the practices that sustain the bonds that tie all pieces of the environment together. Karuk ceremonies are for Fixing the World - the people, the animals, the plants, and the air and water. In that sense, everything is a cultural resource.

Accounts of the prayers offered by people in land management or hunting roles - not just priests of sacred ceremonies - demonstrate the way all resources are unified. The prayer to the mountains links the uplands with the water and the fish. As the stories tell, the prayer is based on the presence or absence of the Pacific Giant Salamander. This species indicates the health of the environment and revered as the water purifier. It is said that when the Pacific Giant Salamander is in peril, the entire system is on the verge of collapse. According to the stories that prayer is carried on: from the salamander to the frog, from the frog to the Pacific Garter Snake; from the snake to the springs and the salmon; from the salmon down the river and out to the sea. Then the sea will produce fog and clouds, and make rain in the mountains to restore balance in the world. The salamander is a key part in the cycle of rejuvenation covering the whole landscape.

Recent observations demonstrate the crucial ongoing part the salamander plays in indicating the health of the landscape. In 2015, over 800 dead Pacific Giant Salamanders were counted in the Salmon River watershed at the same time as mortality exceeded 15% in the Spring Chinook Salmon run. It was ultimately fire, and correlating smoke shading of the river corridor that cooled the river and halted this die-off.

Below is an example of a story connecting the time of the Spirit People or Ikxareyavs to contemporary times. What we could learn from it in current conditions, is that we may need to increase our use of fire in order to protect salmon stocks using the smoke to maintain water conditions to below the temperature threshold for Pacific Giant Salamander mortality.

The story of how Coyote stole Fire

Karuk stories commonly tell of the relationship of people today to the Ikxareyavs, and on the role of Coyote in establishing that transition. Coyote is a trickster figure and helper of mankind. This story tells of how Coyote stole fire. In the Western tradition, a similar essential premise may be noticed in the story of Prometheus stealing fire from the gods, inside a fennel stalk. But the very significant differences in this story demonstrate its cultural significance. The Spirit People were the original beings in the world, before people existed. They changed into the beings in the world - the animals, the fish, the trees, and the rocks, as well as people. Coyote's trickery represents the essential inventiveness and resourcefulness of people. Mankind has something of the quality of those Spirit People. But people also inherited a sense of duty. Only some of the Spirit People chose to become humans, and part of that choice was to make the promise to care for the land, the plants, and the animals within it. All those beings were siblings in the time of Spirit People, and the familial bonds persist to this day. A summary of the story is below:

> Coyote wanted to steal fire, which had been lost in a bet. He collected various animals, and placed them at intervals from the river to the mountains. Frog was in the first place - closest to the river. There was forest fire in the mountains, and he stole it by diverting the children who were in charge of it, and then pretending to fall asleep by the fire, having placed oak bark between his toes. At the right moment, he ran away with a piece of burning charcoal. The ember got passed from one animal to the next as each got tired. Turtle was able to escape by rolling down from a mountaintop towards the river, and then gave it to Frog. Frog hid the fire in his mouth, dived in the river and swam to the other side, and spat the fire out under a Willow. Dogs howled as the fire rose up, and mankind came into existence.

In this story, several key themes emerge. The story represents the transition from the time of Spirit People to the time of people, and it defines their relationship to the world. This transition is marked by the howling of dogs. Three things happen simultaneously: the appearance of fire by the river, the transformation of the Spirit People, and the emergence of mankind. They are linked. Fire is crucial to who people are, and what they do. It enables them to live. It is a central component of that duty of care for the whole world, which is inherited form their common ancestry as Spirit People. People need to work with all the animals, and to manage the landscape from the lowest points to the highest. Care of the environment covers all the plants and animals, and is an obligation for the humans who live there.

These interconnected threads of landscape management and duty are articulated in the stories that elders tell their children. Utmost attention is required, because they represent the cultural inheritance of wisdom and values. In the story of Coyote stealing fire, it is very significant that willow is the species in which fire comes to reside. The story emblematizes good management practices that are carried down to this day. There are two broad aspects to this management: enhancing positives and minimizing negatives. On the positive side is the use of fire. In this story, Frog ultimately hides fire at the base - in the roots - of the Willow plant. Willow is the plant used for fire making: rubbing sticks together, and later, using a bow. It is used for cooking and heating, and many other uses. Willow is to be found down by the river, and grows with the rhythms of the river. But in order to be useful, Willow needs to be managed by people. Willow is also a key resource in itself: it is a key species for basketmaking. The new stalks are harvested early in the year, are stripped of bark, dried for keeping, and then wetted for weaving purposes. The roots are also used for this purpose. As with Hazel, another basketmaking resource, the use of fire changes the cellular structure and makes it grow straighter and stronger. On the negative side, trees and shrubs can grow out of control, and inhibit access and contribute to risks of wildfire. Down by the river, village sites, gathering sites, fishing places, and dancegrounds need to be protected from fire by reducing excess fuels, making

fuel breaks, and promoting buffer species such as live Manzanita. Up in the mountains too, fire has traditionally been used to manage the complete landscape, drainage by drainage. While the fire that Coyote found in the mountains was natural wildfire, management involves human intervention to ensure that fire burns though at regular enough intervals to promote cultural use species and to lessen the danger of wildfire. When Frog hid fire in Willow root, that provided access to humans and enabled the responsibility to be upheld while providing clues leading to identification of additional indicators that would trend the balance of nature toward abundance without triggering unsupported population explosions, followed by species starvation and decline.

Stories in many cases revolve around Coyote as the one who helped bring humans into being. It is told that Coyote had seven wives whom at the time of the great transformation turned into the constellation Pleiades. It is said that when this constellation is not visible (April - June) their spirits come back to earth to help all things through their reproductive cycle. At this time, people were to have the utmost respect for this process by using fire only for the purposes of heating and cooking. In addition to this, place based indicators with some degree of spacial variability extended this time earlier into spring in respect for the reproductive rights of individual species.

This world view establishes a belief system that protects the balance in nature, while remaining rooted in practice and enabling observational knowledge accumulation through intergenerational change.

TEK and Focal Species

The story of Coyote stealing fire provides an example of how stories encapsulate aspects of Traditional Ecological Knowledge and outline the combination of responsibility, respect, and reciprocity that links the people to their environment. It demonstrates how teachings from the beginning of time inform current practice.

At the same time as aligning with ancestral practice, the design of the current project needs to fit the current condition of the landscape and the current regulatory context. As can readily be seen, TEK considerations do not involve single species management, but whole landscape improvement - for the collective benefit of the people, the animals, and the plants. It would not be realistic to analyze and study for all species across the landscape. This project therefore makes use of the 2012 planning rule, which introduced the idea of a limited number of "Focal Species." Since involving all aspects of TEK in our initial pilot projects would be too complex, a few were selected to begin to formulate a story of human re-emergence in accepting the people's collective responsibility in a contemporary future. The focal species selected are those that are either directly regulated by laws such as the Endangered Species Act, associated with water quality regulations, or founded in TEK as being foundational in our human/fire relationships. Some of them are regalia species in Tribal ceremonies. Regalia species are crucial to tribal people through ancestral tradition.

Five focal species have been selected according to these guidelines for the initiation of the Somes Bar IFMP and inform the planning efforts of the greater WKRP collaborative. Two of them have been described explicitly in the previous section on stories: the Willow and the Pacific Giant Salamander. A third, Roosevelt Elk, can be found in the story on a more implicit level. Elk represents a bridging between the human fire relationship (men carry fire in elk horns) and howling dogs (wolf returning to adjacent landscapes). In looking to an imminent return of the wolf, elk habitat dynamics are critical in protecting their reproductive rights from the wolf, as well as enhancing our ability to see things through the eyes of the wolf in teaching the importance of family, togetherness, or collaboration. Then we have the Northern Spotted Owl (NSO) as a regulated species, with Pacific Fisher as a potential surrogate, which is a regalia species directly ties to TEK principles. Approaching management questions from a broader landscape scale, the Pacific Fisher in fact closely matches the habitat

characteristics critical to the Spotted Owl food web. On the other hand, it is not necessarily a perfect fit with typical Nesting/Roosting, Foraging, and Dispersal habitat considerations for the NSO.

The focal species represent different components of the landscape. If those components are put together, management for the focal species promises to provide a realistic and holistic approach to whole landscape management. Broadly speaking, the Willow is concentrated around the riverine areas; the Salamander in the low gradient riparian areas; the NSO in old growth forest; the Pacific Fisher in the forest plus the oak woodlands; the Elk in the open areas and higher elevation grasslands, or the passageways provided by serpentine soils. These are five crucial components of the whole landscape.

The focal species provide the top level of landscape-level analysis. Below that level, each focal species comes with a set of indicator species, which serve as indicators of the health of a habitat segment for the applicable focal species. Many of these indicator species are cultural use species: for example, Woodwardia and Five-fingered fern live in riparian zones, whose focal species is the Pacific Giant Salamander. The main efforts in the Cultural Resource surveys focus on these cultural use species. In the present context, it needs to be borne in mind how the indicator species link the cultural uses to the focal species and the whole landscape. What follows is a top-level analysis of how the focal species play a key role in the health of landscape segments. Awareness of this interconnectivity lies at the heart of Traditional Ecological Knowledge. It is also crucial for the revitalization of traditional knowledge, practice, and belief pathways through the adaptive management framework adopted by the Western Klamath Restoration Partnership.

The story of Coyote stealing fire illustrates the crucial place of Willow within human culture. One can correlate the human use and responsibility to the plants and animals to a cyclic interaction among all living things. This interaction operates among Traditional Ecological Knowledge, practice, and belief pathways. The Willow grows around and at the edge of the river, often close to the sites of traditional villages. Willow is used to make fire, and is a crucial basketweaving resource. It is particularly important in terms of female responsibility. Willow also harbors the river mussel. The mussel shell is used by women to carry fire when upholding the traditional female fire use responsibility to the plants.

Legal regulatory frameworks mandate that the the Northern Spotted Owl must be considered in the NEPA process in planning projects. In Karuk culture, it is the Pacific Fisher that represents Northern Spotted Owl habitats in the environment. Though Owls are known as messengers of sickness and death, it is the Great Horned Owl and Screech Owl that are told to carry these specific messages. These two species are known to have specific names in the Karuk language. The NSO is not known to have a specific name, but has been found in practice to be one of the first species to decline when the habitat dynamics deteriorate owing to fire exclusion and other contemporary management practices.

While the interpretation could be made that the NSO is a messenger of a sick forest habitat dynamic, that function is traditionally associated with another species, the Pacific Fisher, which is not only legally regulated but is also a regalia species. The fisher in fact covers a wider array of habitat dynamics, which in turn are more representative of fire process and function. The Fisher is not just associated with the conifer forests, but also with the upland oak stands, which are traditionally more open and contain bunch-grasses. The Fisher plays a very central role in ceremony and culture: this is the species that is carried through the world renewal ceremonies by way of holding the arrows used to pierce the earth and wake up the world.

To build upon the open end of the Fisher habitat dynamic, Roosevelt Elk was also identified as a focal species. Though neither the Fisher nor the Elk were mentioned explicitly in the summarized story, they have a unique place in ceremonial practice, use and management that helps to start building a story leading us into a contemporary future while maintaining the traditional foundations of

Karuk living culture. With Elk specifically, we get into the traditional male responsibility of taking care of the animals. In fulfilling this male role in fire management, fire is carried in an Elk horn. In integrating the habitat needs of large ungulates and other species needing more open space, we start to enhance the entire spectrum of habitat needs. With Fisher covering the dense habitats transitioning to the more open, and the Elk transitioning from the wide open back to the more dense, there is plenty of overlap in habitat use that can help to frame site specific variation when it comes to formulating a proposed action or need for adaptation and we start to recover the habitat dynamics and ecosystem processes required by the Spotted Owl.

This leaves an additional component of regulatory consideration without complete coverage under our focal species. Riparian areas require special focus in the current regulatory environment. This is not unfounded in traditional Karuk practice. The Pacific Giant Salamander is the traditional focal species that is to be treated with the utmost respect. This species has its own prayer in Karuk World Renewal Ceremonies, and is considered to be the sacred water purifier. Though water quality parameters can be measured as an indicator of water quality, Karuk culture requires that no harm come upon this species and in turn riparian habitats receive special focus and water from the source to the ocean and back again is protected as the primary directive.

As per the 2012 planning rule, focal species and specific questions that we will use in our monitoring efforts should be identified in the planning process. In consideration of these initial five focal species, the following questions may help to formulate a monitoring plan:

- Can we treat enough Willow and other basketry materials to supply basket weavers with enough gathering opportunity and materials to sustain this cultural practice?
- How often and to what extent should Willow be cut, burned or washed down the river to ensure quality basket materials are being produced while associated species habitat components are maintained or enhanced?
- Can the Pacific Fisher become a surrogate species for NSO in landscape scale planning efforts while allowing for oak woodland maintenance/recovery efforts to take place?
- Can Elk winter range and calving habitat restoration increase the population viability for Elk and other large ungulates?
- What additional focal species and indicators should be integrated into site specific prescription adaptations (lesser effect than analyzed) and future planning efforts?

A Karuk – Six Rivers NF Collaborative Approach

The Archaeological - Cultural Resource surveys conducted by the Karuk and Forest Service Archaeological Crew were rather different from those practiced elsewhere in the state. The National Historic Preservation Act (NHPA) Section 106, as conventionally interpreted, tends to make the assumption the archaeological resources represent a dead culture. The surveys employed for this project aim toward the goal of preserving a living culture. They are designed around cultural revitalization and landscape restoration objectives, rather than the minimum requirements of Historic Preservation law. The identification phase included cultural resources areas that may benefit from the actions of this project.

The survey strategy has been formed jointly by the Karuk Tribe and the US Forest Service, in order to meet the fundamental goals of the project, while working within the framework of Historic Preservation law - in particular, analyzing whether or not any adverse effects will occur to known

historic or pre-contact (prehistoric) sites. Historic Preservation law is premised on protecting resources from federal actions. A primary assumption behind Historic Preservation laws is that a project has the potential to cause harm to archaeological resources. Our approach in the Somes Bar IFM project calls for actions that will benefit rather than harm the cultural and natural resources.

The surveys were designed to identify cultural resources that may end up being considered elements of a potential future TCP that may be larger than the areas covered within the focal areas. Broadening the scope of the archaeological surveys to cultural vegetation characteristics and resources that may become elements of a future TCP are more effective in meeting the intent of the National Historic Preservation Act.

The concept of Traditional Cultural Properties (TCPs) and their consideration within historic preservation law has allowed for a deeper understanding of what needs to be identified and protected. TCPs are places that tie the practices of a living community with ancestral use; vegetation features, landscape features, the setting, and the feeling of a place may all be concrete contributory elements in the designation of a TCP. This brings to the fore a broader understanding of Historic Preservation law that allows consideration of historic activities within a given area that link to contemporary practices. Those contemporary practices will include the active management of sites that have been used for countless generations and are still used by people today. The purpose and need of this project opens up the possibility that the management actions will benefit and revitalize those sites. In this way, the NHPA can be employed to preserve the living culture of the Karuk people.

The assessment factors below open up the possibility that certain projects, such as fuels reductions and the reintroduction of cultural burning, will in fact improve the state of certain sites, objects, features or properties. It is important to consider traditional principles, practices, use factors, and associated wildlife habitats that link the action to the spiritual, living environment, and human responsibility through respect and reciprocity, especially in regard to food, fiber, medicinal and regalia species.

These practices include management by fire, spiritual uses, gathering uses, hunting, and evidence of temporary or long-term habitation. Thus, the survey crew assessed cultural resources that may not fit the strict definition of an historic property, but with a more holistic look may in the future become elements of a landscape-scale traditional cultural property, cultural landscape, or cultural district. This information is gathered in order to be correlated with Traditional Ecological Knowledge (TEK) and is incorporated into the design of the Somes Bar planning effort.

The broader vision for the WKRP planning area is to enable restoration of cultural burning practices on Offield Mountain and in the adjacent landscape, utilizing tenets of TEK as an indigenous science that works together with Euro-American models of science, hence revitalizing our cultural responsibilities to this place, and protecting the Karuk people from the loss of our cultural identity.

Cultural resources are recorded in a manner that reflects Tribal values and perspectives. In addition to identifying historic properties, the Archaeological/Cultural Resources crew identify evidence for how the land was used and managed in the past, with a view to revitalizing those practices in their traditional places.

The cultural resources identified and TEK expressed through this project provide a living memory of human use and responsibility in context of place and can help us realize the stories of the past in the formulation of our contemporary future. By reconnecting the human role to the whole landscape, we can strengthen the spiritual, subsistence and management practices that the place calls the people to perform.

Archaeology and Living Environment

Tribal knowledge is driving the planning of this project using TEK on par with tenets of western science. Within Karuk aboriginal territory, there are living, breathing people who still follow the same practices for which evidence exists on and in the ground. Archaeology is conventionally practiced as though the information sought pertains to a dead culture. In the Karuk world view there is a deeper meaning that has to do with the relationship with those that came before. Archaeology needs to be practiced in conjunction with talking to people, and in conformity with those deeper meanings.

The Karuk living culture is expressed not only in people's beliefs and practices, or in the plants and animals that make up the landscape, but also in the things that have been touched and used by people in the past. For these reasons, excavation goes against Karuk beliefs and traditions. What is in the soil, should stay there. The Tribe does implement archaeological survey, documenting features, artifacts, cultural vegetation characteristics and associated wildlife habitats. Cultural resources still have a life, as do the people using them, all of which have a link with spirits of old. If you find an old artifact out in the field, you touch it with a stick: it still has something of the people who have touched it before. You need to get rid of any bad feeling in that rock. It has an intention: it wants to lie where it is - it should be left alone. Similarly, regalia items have a spirit too. They are made to be danced: they do not want to languish in museums and archives, but want to dance. You should let them be used, and be worn. Taking a longer view than most archaeologists, one can see how these resources have come to rest in the place they lie.

In this context, the premise of archaeological investigation should not be to identify and evaluate resources before a project happens and damages them. A focus on potential adverse effects to historic properties conventionally implies that the items of certain types are within a defined area; that they are inanimate or products of a way of life that is past; and that they need to be saved from harm. The archaeological / cultural resource surveys in this project are designed to identify combinations of features that together serve as indicators of human use; those features are associated with the people and resources of place, and justify historic preservation through the potential of this project to revitalize that human relationship with the living environment.

Affected Environment

The Affected Environment is being considered in the light of the cultural practices that produce it and sustain it. The surveys provide a window into the current conditions of the landscape. The incorporation of tribal participation in the surveys, with extensive experience in ceremonial and gathering practices and Traditional Ecological Knowledge, has enabled the consideration of broader range of cultural resources and associations that deepen our understanding of present and past use of the landscape. The survey results will be utilized in the project prescriptions and project design features to benefit and enhance culturally utilized plants, promote gathering and other cultural practices, and re-establish cultural burning.

Traditional Ecological Knowledge (TEK) considerations should be given at least equal weight to the findings of Western science in designing projects. The principles of TEK arise from the fact that the Tribe is a place-based culture. The Karuk Tribe has occupied the same land for countless generations, and Tribal tradition includes a remarkable continuity of environmental management knowledge. While western science findings may be found in standard references, many of the key principles of TEK are encapsulated in the responsibility to the land, is both passed down and learned in contact with the environment. These considerations would express themselves as automatic, instinctive, and intuitive ideas the mind of an indigenous person when thinking about land management.

Cultural Context

The Karuk Tribe has practiced World Renewal Ceremonies around Panamniik and Katimiin since time immemorial. These ceremonial centers are located respectively near the modern Orleans and Somes Bar. The ceremonies themselves have been passed down intact since the beginning of time, and make up a key part of the social fabric of those communities. They link up families and guide spiritual, hunting, and gathering, and land management activities. The whole landscape needs to be considered to understand the links between village sites, gathering places, spiritual trails, and places that have been managed in accordance with ancestral principles, use and responsibility. Tribal people continue to practice a close relationship with the land and value many resources throughout the landscape as sacred. The relationship between the people and the land, as well as the sacred duty to take care of it for all animals and plants, has endured through countless generations. People still gather, hunt, fish, prune, burn, and coppice, and carry on their cultural practices throughout the Karuk Aboriginal Territory. In many cases, locational information and other sensitive information needs to be kept confidential in order to protect this relationship. However, in order to preserve this relationship, it must be enabled to thrive as a continual living culture in place through traditional knowledge, practice, and belief systems.

Human Practices Across the Landscape

The Tribe takes account of the relationships between various phenomena that tie together all earthly and astronomical spirits. A landscape perspective is crucial for interpreting the information cultural resources may hold in the context of the culture itself. Broadly speaking, the cultural surveys initially focus on five main uses of the landscape by people: habitation, gathering, management, hunting, and the spiritual.

Habitation means houses and villages. Houses are usually found on a terrace elevated above the river. They would be indicated by pit houses, porch stones, midden soil, and graves. Other resources such as white and blue clay deposits and Port Orford Cedar stands are also associated with these houses and ceremonial structures. Houses at higher elevations for the most part have historically

been constructed with bark and poles. There is the occasional permanent house location at higher elevations for certain purposes.

Gathering refers principally to basketmaking materials, food and medicine. Many gathering activities would take place close to the houses in the watersheds above the rivers and creeks. The favored form of gathered food are acorns from Tanoaks; Black Oaks are used also, as are mushrooms, nuts, berries and teas of many kinds. Grinding stones, mortars, pestles, etc., are often found in or near to these environments. Traditional archaeological site definitions, if applied strictly, would have limited scope for identifying and documenting these areas. But when considered in the context of their relationship with the other four factors, the story of a living culture begins to emerge. Families to a great extent manage their own gathering areas, and these are generally respected by others. Tools historically left in place can still be found today. Fire is integral to an active gathering culture and when practiced within the context of the female responsibility, fire was normally carried in a mussel shell.

Hunting resources include trails, blazes, arrowheads, hunting camps and cultural species associated with hunting practices. These include Yew, Mock Orange, Douglas Fir, Ironwood, as well as birds and furbearers. Fishing and fish processing sites would also be included in this category. The habitats of the creatures that are hunted, or used for tools and ceremonial regalia, are in themselves integral to the associated management practices and to the spiritual human responsibility. Fire used in the context of the male responsibility was carried in an Elk horn. The use of fire as a tool in Karuk culture provides for both protection and for enhancement of resources.

Management by fire, is in practice integral to the other four factors, but is worthy of a special category. The landscape is managed principally by burning, and the frequency of those interventions depends on the intended purpose and whether it is a male or a female responsibility. Fire management provides one of the more abundant kinds of evidence that can be found on the landscape today. In ancestral practice, Sugar Pines were the most prized ignition source, especially because of their yield of pitch and needles. Black pitch was indeed one of the most prized monetary resources available. Pine trees in general bridge both the male and female responsibility. Pine roots and needles are also used in basket making and are represented in ceremony as the tree of life. The presence of Pines in specific landscape situations shows human management. In many cases these remnant pine stands are located in areas central to landscape/resource specific ignition patterns. It takes hundreds of years to manage the lifecycle of pine to assure you always have an adequate pitch supply. If these places were not managed for this resource, they would not be found in this pattern on the landscape today. Indicators such as this are prevalent in the landscape. They can be assessed through the identification of different species that correlate to products of fire management, and through the distinct human responsibility associated with a given piece of knowledge around a particular practice and/or belief.

Spiritual sites would include sweathouses, dancegrounds, ceremonial structures, sacred places, sacred landscapes, spiritual trails, fire places and prayer seats. Setting, location, and feeling are crucial elements when interpreting the teachings that have been handed down, and are therefore very firmly tied to specific places. Stories and expressions handed down for millennia are often not completely realized by an individual until put into practice. You can tell a person to carry out a task, and why they should do it, but then they may not notice when a new variable comes into play. If the action one is asked to do is rooted in a purpose for which one has been exposed to a profound respect for the indicators through their entire life, they are more likely to come to realize the smallest of nuance on their own. While spiritual factors may be interpreted in a physical/locational sense, it needs to be borne in mind that there are intangible factors, as they are also founded in the responsibility under which one should or should not perform any action. A good example of this is burn timing and responsibility toward reproductive cycles as founded in an utmost respect for only using fire for heating and cooking during the time Pleiades is not visible in the sky (April-June). As explained above, the Pleiades are associated with a regenerative function within the universe, and represent

Coyote's wives. Such restrictions are applicable on a broad level. Site specific indicators expand this responsibility to particular situations.

Cultural Resource Recording Procedures

The Karuk Tribe and the U.S. Forest Service are partners in the planning and implementation of the cultural resource surveys. Because of this, the surveys fit the requirements for archaeological survey on public land administered by USFS, and also meet the principles of cultural resources survey outlined above. The USFS guiding document for archaeological survey is the Region 5 Programmatic Agreement with SHPO and ACHP. All documented archaeological sites are treated as historic properties potentially eligible for listing on the National Register of Historic Places, unless determined otherwise; consequently sites were recorded on standard California DPR forms with discrete site boundaries.

Archaeological Sites are defined as: "A location of purposeful prehistoric or historic human activity. An activity is considered to have been purposeful if it resulted in a deposit of cultural materials beyond the level of one or a few accidentally lost artifacts." Natural resources with signs of human manipulation are considered as ecological artifacts or features. An example would be a site that includes vegetation associated with past fire management practices (e.g. Sugar Pine) and other fire-dependent resources (e.g. Tan Oak, Hazel, Beargrass) in association with artifacts. Traditional Ecological Knowledge forms were created for every pre-contact archaeological site to provide a broader context for the artifacts found across the landscape. Our understanding of past management practices is deepened by combining analysis of documenting artifacts with TEK considerations. This wider analysis allows consideration as sites of single artifacts, conventionally called "isolates", if they are found within a wider context of ecological or landscape features and cultural use species that indicates purposeful human activity in that location. All archaeological sites documented in the project area are considered historic properties that are potentially eligible for listing on the National Register of Historic Places.

In addition to recording sites, Resource Areas were recorded on Traditional Ecological Knowledge (TEK) forms. The partnership of the Tribe and the Forest Service has developed and field-tested a Traditional Ecological Knowledge form which is designed to articulate those TEK considerations that would be necessary to inform management decisions. The TEK forms provide information on the natural resources showing signs of past or contemporary use/management (i.e. cultural vegetation characteristics), associations with the broader landscape (known villages, trails, hunting grounds, old camp sites, spiritual trails, springs, ridgetops, view sheds, ceremonial areas), and management recommendations to enhance cultural use quality.

Resource Areas are locations that provide evidence about past human use or management. They may or may not have artifacts present. Resource Areas may or may not qualify as archaeological sites. Their boundaries frequently overlap with archaeological sites, and in some cases are coextensive with them. Resources Areas would often be tied to the five types of human use listed, and they may include landscape features, vegetation, or artifacts in significant and agreed concentrations or combinations. The cultural use vegetation elements are called cultural vegetation characteristics, as defined below.

Cultural Vegetation Characteristics make up a special category of Tribal archaeological data. They are main constituents of Resource Areas that provide evidence of human management. They are defined as follows: Cultural Vegetation Characteristics are vegetation assemblages that are indicative of historic human use, management, or occupation. They are indicators that provide historically relevant information which may justify their designation as a site, property, or as a feature in determining the eligibility of a larger District.

Examples of vegetation that show evidence of management include Huckleberry, Sugar Pine, and Tan Oak. Tan Oak groves require fire and removal of younger trees to ensure the health, vitality and productivity of the main trees. A high quality grove will have mature, well-spaced trees. Huckleberries need to be managed in order to produce useful berries for people and animals. Both of these become unproductive if left to grow unchecked. Sugar Pines, as stated above, are often found in strategic places on ridges, and would have been managed to serve as ignition sources. Accordingly, they are commonly found in conjunction with other plants that thrive in areas well managed by fire, such as Tan Oak, Hazel or Beargrass.

The Resource Areas were given boundaries for this project to define a discrete grouping of cultural vegetation as verified by ground surveys. These areas are considered to be contributing elements to the larger cultural landscape. The broader management context for these resource areas will inevitably turn out to be larger than this project area. The surveys provide valuable information for a future designation of a much larger Traditional Cultural Property (TCP), Historic District, or Cultural Management Area. Because of the potential for confusion of the focal areas with the already-established Katimiin Cultural Management Area, the preferred aim for the Resource Areas is for a future TCP designation.

Regulatory Framework

The Western Klamath Restoration Partnership aims at transforming the fire exclusion paradigm to one of holistic landscape management practice in alignment with the National Cohesive Wildland Fire Management Strategy. Archaeological surveys for the Somes Bar IFM demonstration project have been implemented in accordance with the requirements of the National Environmental Policy Act of 1969 and Section 106 of the National Historic Preservation Act of 1966. Compliance with these laws is required to gain the agency environmental approvals for implementation of this project, which calls for manual, mechanical, and prescribed fire treatments. Section 106 of the NHPA requires two things: that any adverse effects to historic properties be considered, analyzed, mitigated, and disclosed before initiating an undertaking, and that the Advisory Council on Historic Preservation be given the opportunity to comment on any such potential adverse effects.

For the Somes Bar IFM project, standard protection measures will be applied to sites in and near the area of potential effect in accordance with the U. S. Forest Service Region 5 Programmatic Agreement, Appendix E (Standard Resource Protection Measures). Provided that all Standard Protections Measures are completed, it is anticipated that no historic properties will be adversely affected by this project.

For the purposes of NHPA Section 106 analysis (outlined at 36 CFR 800) we have identified the APE of the project as the external boundaries of our four focal areas at Ti Bar, Patterson, Rodgers Creek, and Donahue Flat. This APE also corresponds in NEPA terms to the area of Direct Effects. It is more productive to consider the APE of the project in NEPA terms as the area of Direct Effects. This is because Section 106 regulations are premised on the assumption that “potential effects to historic properties” are negative in nature, and need to be mitigated or avoided. This project aims at enhancing these areas. This report documents that there will be no significant impacts to cultural resources in the NEPA framework, and no adverse effects in the NHPA framework.

This report does not address site specific effects from the perspective of the National Historic Preservation Act (NHPA). Site specific effects will be addressed in compliance documentation completed for the inventory, evaluation and resolution of effects on cultural resources to meet the re-

quirements of Section 106 of the National Historic Preservation Act. Therefore, this specialist report does not meet the requirements of Section 106 for approving cultural resource clearance.

An archaeological survey was conducted on the project area and recorded in a Cultural Resources Inventory Report (CRIR R2015051000018), which is on file in the Heritage Department of the Six Rivers National Forest Supervisor's Office and at the Tribal Historic Preservation Office of the Karuk Tribe. Archaeological surveys were conducted in accordance with the requirements set forth in the U. S. Forest Service Region 5 Programmatic Agreement, Appendix H (Region 5 Hazardous Fuel Protocol), as well as the survey protocol developed by the Karuk Resources Advisory Board in collaboration with Six Rivers National Forest. Since the project aims at the revitalization of community and cultural values, the surveys were designed to identify resource areas with high potential for improving the viability of cultural resources and tribal uses impacted by a century of fire exclusion and related past management practices.

Much of the land in the Somes Bar IFM demonstration project is administered by the US Forest Service, and all of it is within Karuk Aboriginal Territory. There is a statutory obligation to engage in Section 106 and tribal consultation processes for projects on this land. Government-to-Government Tribal Consultation has been on-going between the Karuk Tribe and Six Rivers National Forest since the project's inception in 2013. The Karuk Resources Advisory Board and Department of Natural Resources has been fully involved and has led all aspects of project design and planning.

Information regarding sensitive cultural resources and all locational data will be protected from public disclosure will not be subject to FOIA. Relevant Federal statutes include the 2008 Farm Bill, the FOIA identification of exemptions [5 U.S.C. Section 552 (b) (3)], NHPA confidentiality [16 U.S.C. Section 470 hh], and the 2008 Farm Bill [122 Stat. 2050 Public Law 110-246, § 8106 (b) (2) (i-ii)].

The project was designed in concert with the Katimiin Memorandum of Understanding between the Karuk Tribe, Six Rivers National Forest, and Klamath National Forest, which establishes a working partnership between those entities with respect to management activities and opportunities within and adjacent to the Katimiin Cultural Management Area. This document recognizes the central importance of the Katimiin CMA in the Tribe's culture and beliefs. The project also puts into practice some of the principles from the Karuk Tribe's draft Eco-Cultural Resources Management Plan (ECRMP), which is an over-arching planning document that aims at establishing a unified approach to managing the human, cultural/natural resources, and interests of the Karuk Tribe. The ECRMP specifies resource concerns, goals, objectives, current conditions, and future desired conditions, in a variety of environmental areas including Cultural Resources.

Traditional Cultural Property "… can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998:1). Being eligible for the National Register of Historic Places is the way Federal agencies evaluate the significance of cultural resources on a national scale. In a more common sense, Traditional Cultural Properties (TCPs) are places that are culturally significant to living communities.

Historic Property is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register, including artifacts, records, and material remains related to such a property or resource (NHPA-Title III-Section 301).

Included in or eligible for the National Register means:

To be considered eligible, a property must meet the National Register Criteria for Evaluation. This involves examining the property's age, integrity, and significance.

- *Age and Integrity. Is the property old enough to be considered historic (generally at least 50 years old) and does it still look much the way it did in the past?*

- *Significance. Is the property associated with events, activities, or developments that were important in the past? With the lives of people who were important in the past? With significant architectural history, landscape history, or engineering achievements? Does it have the potential to yield information through archaeological investigation about our past?*

Historic properties can include archaeological sites and Traditional Cultural Properties. Federal agencies determine the significance of cultural resources on a national scale by determining their eligibility for the National Register of Historic Places. Being eligible for the National Register means a property has acquired significance in light of its contribution to the past, and meets one of the criteria of eligibility for the National Register.

Criteria of eligibility refer to the quality of significance in American history, architecture, archaeology, engineering, and culture present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That has yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Environmental Considerations:

Direct and Indirect Effects

The focal areas cover approximately 5500 acres across the locations designated at Donahue Flat, Rogers Creek, Patterson, and Ti Bar. Of those locations, a large portion has been designated "Burn Only" - i.e. with no significant preparatory work, aside from establishing fire lines to contain the cultural burning within set areas. No potentially ground disturbing work would be projected for those areas. The surveys were conducted on the fire lines and those designated for mechanical thinning, which total 2475 acres. Together with roadside, hand thin, and mechanical cable areas, and additional fireline prep in burn only areas, the total comes to 3900 acres. The 2015 field season surveys concentrated on roadside locations and covered approximately 1900 acres. In 2016, an additional 2000 acres were surveyed, including all units proposed for mechanical timber harvest. All the previously known archaeological sites within the project area were identified and updated as part of this project. The majority of these were historic mining sites. All Resource Areas were assessed using TEK forms. In addition, Resource Areas identified during the survey process were also surveyed. The total of 3900 acres includes approximately 700 additional acres that were surveyed within Resource Areas in the event heavier management treatment were to be proposed.

Resource Areas are locations where a significant concentration or combination of resources, including cultural vegetation characteristics (CVCs), artifacts, and features such as trails and ridges justifies an assessment of past human use and management. These assessments are made with a view to treating them for future use due to their short term resource potential through the introduction of fire and other ancestral management practices. As typical in traditional knowledge, practice and belief systems, it would be through post fire monitoring and reassessment of ecosystem response to treatment that additional Resource Areas may be identified or adjusted according to the site specific situation.

The number of documented archaeological sites in the focal areas total 90, which are discussed in the restricted Cultural Resources Inventory Report.

Direct Effects

As described above in the Collaborative Approach section, the primary intent of the proposed actions of the Somes Bar IFM project is to benefit cultural resources. Fuels reduction treatments and the reintroduction of cultural burning will in fact improve the state of certain sites, objects, features or properties. It is important to consider traditional principles, practices, use factors, and associated wildlife habitats that link the action to the spiritual, living environment, and human responsibility through respect and reciprocity, especially in regard to food, fiber, medicinal and regalia species.

The proposed activities in the Somes Bar IFM project include prescribed burning, hand thinning with chainsaws, mastication, and several types of ground-disturbing activities, such as ground and cable-based tree harvesting. These activities have the potential to affect cultural resources, including historic properties, archaeological sites, Traditional Cultural Properties (TCPs), sacred sites, and traditional use areas. However, with the application of Project Design Features and Standard Protection Measures, it is anticipated that none of the proposed activities would adversely affect cultural resources.

How does this all tie together to frame the direct and indirect effects to the human environment? In accordance with the regulatory environment one typically begins by defining the direct and indirect Area of Potential Effect (APE). In this case, the APE has been determined to be the four focal areas. There is a direct connection between the planned activities and the Purpose and Need of the project. The cultural resource surveys have been designed in such a way as to assess current conditions and to design management prescriptions that will lead towards a desired future condition more considerate of perpetuation of living Karuk culture.

Indirect Effects

In taking the approach of TEK integration and in consideration of the fact that we are preserving a living culture while enabling expansion of fire adapted community concepts. The management practices achieved in the currently proposed Somes Bar IFMP demonstration project will lead to the introduction of fire, and will start the process of landscape recovery from years of neglect, fire exclusion, road building, use of chemical/biological agents and logging practices. The reintroduction of management by fire may have indirect beneficial effects over a much wider area than the direct APE covered by this analysis. Since the project takes a holistic landscape approach and employs five focal species that together cover the main landscape components, it is appropriate to realize that we may have indirect beneficial effects in the context of the entire WKRP planning area and beyond. These actions have the potential to enhance the focal species and integrate other TEK considerations across that whole area as well as in building relationships with additional tribal groups. Indirect effects beyond the scope of the WKRP effort are also underway as many people at regional, national, and international scales are expressing interest in the processes and considerations being established and undertaken in this demonstration project. A key indirect effect of this project is the potential for enabling the restoration of important ceremonial burning practices on Offield Mountain. By treating large areas around residential structures, and building social license for increasing the scope and scale of fire use, ceremonial burning can be restored, as well as managed wildfire decisions enabled on adjacent landscapes.

Alternatives

This report considers two alternatives: the No Action and the Proposed Action. It is worth noting that the cultural resources surveys have been designed to cover the most intensive treatments, or those which are most likely to produce significant impacts. Any other actions outlined in the Draft EA, therefore, will involve less treatment and will already have cultural resources survey coverage and meet analysis requirements by assessment of these two alternatives.

Assessment of Effects: Proposed Action Alternative

Direct effects for the preservation of Karuk living culture aim at whole landscape enhancement. The identification of the focal species and indicator species served to show interconnections of mutual dependency between one species and another. They provide a rational, coherent explanation of how saving or enhancing one value will contribute to the environment as a whole. Traditional Ecological Knowledge does not focus, as modern regulations tend to, on single species management, but on the health and productivity of the whole.

The immediate aim of the treatment and burning of the Somes Bar IFMP is to enhance the diversity and productivity of the vegetative species. These values tie directly to the identified Purpose and Need of the project as a whole. It has been observed that the landscape is so heavily vegetated that the reintroduction of burning cannot be accomplished without prior treatment work. Moreover, there is an overabundance of Douglas Fir on the landscape, whereas in the past, evidence shows that there was a much more significant variety of hardwoods on the landscape. These can still be seen in certain places.

One of the most threatened species is the California Black Oak (*Quercus Kelloggii*), which is vulnerable to being overtopped and crowded out by Douglas Fir. All the same, the Oaks that remain are old and serve as indicators of an ancestral state. One of the biggest deficits on the landscape is the old upland Oak woodland. The development of the TEK forms has helped summarize most of the characteristics of these remnant stands. As has been demonstrated by Jeffrey N. Crawford in a University of Nevada, Reno dissertation, the evidence from charcoal records demonstrate the development of these Oak uplands just after the end of the last Ice Age, and - crucially - that this development was anthropogenic, not natural in origin.

These woodlands would usually be southeast to southwest facing, on relatively gentle slope, have relatively open canopy conditions, and would have grasses, forbs, foods, medicines, and fibers among them. These stands are sometimes found on northerly aspects with higher insolation values and make for good fire management features when restored and burned frequently. The people would manage this and adjacent habitats by introducing fire prior to bud set in spring triggering immediate response in ground resources that provide high quality food for animals and people alike. While most other burning is done in early summer though fall, this late winter/early spring practice also provides a valuable teaching component in and near areas of permanent habitation through bringing together elders and youth to teach and learn about the dynamics of fire practice in a low fire risk setting. The conditions in early spring are just right to run fire at low intensity through open canopies covering cured grasses and leaf litter and to enhance the habitat for other animals while reducing vulnerability to overstory trees during in-season fire events. In particular, this habitat is crucial for Elk and for the Pacific Fisher, two of the focal species. These Oak uplands provide crucial connections for the elk between their calving habitat in the woods and their upland summer range. Elk horns are often found in these areas, and they in turn are crucial for management by fire. These habitats provide both browse and the necessary open conditions for Elk to thrive. More research is ongoing about their migration patterns across the landscape. The Fisher, while it burrows in the hardwood and conifer forest, often comes out to forage and rest in the more open conditions provided by Oak woodlands. These habitats provide rodents and other prey for the Fisher. In several cases, management decision should take into account providing food for prey for focal species. Such considerations have assisted in designing prescriptions that benefit the ecosystem as a whole.

The Black Oak woodland is just one component of the landscape that is in deficit. As can be observed in various places, when clear-cut logging has occurred, certain species will grow back naturally. Tan Oak, a crucial cultural species, can grow thick and unchecked, and will produce a hillside with many thin stems. This is unproductive for humans and animals alike. Tan Oak groves, such as those identified in the cultural surveys, have mature trees which are well-spaced. Management by fire would usually be low intensity because ground cover is generally quite low apart from the litter

and duff on the ground. Fire should run through these stands and not harm the trees. The groves will also have been managed by cutting trees to favor others. As has been set out in the previous sections, Pine and Manzanita spines have a crucial role to play in the management by fire, for introducing controlled burning, and for community protection.

The discussion above provides an account of the positive effects of the management work and some of the aims of reintroducing fire. One should also discuss some potential negative effects.

In some cases there is the potential for direct effects to archaeological values. Wooden features such as cabins will be protected according to the processes outlined in the Region 5 Programmatic Agreement. Standard Protection Measures are designed to avoid adverse effects to these kinds of resources. Moreover, Project Design Features and Standard Protection Measures call for the exclusion of heavy equipment in certain zones, for instance where mushrooms grow. These are important gathering resources and would be harmed through damage to the mycelium layer from heavy equipment use. Hand treatment would be recommended in many of those equipment exclusion zones. If hand treatment is practiced sensitively, and burn piles are located at a safe distance from sensitive resources, hand treatment would not produce significant direct effects.

Many areas within the APE were designated as "Burn Only," and were surveyed only along proposed fire line routes. They were so designated because they were steep and inaccessible - both for cultural surveys and for project implementation activities. This does not mean to say that they were inaccessible to people who came before: there may be resources in these areas. Although all areas planned for other potentially ground-disturbing treatment have been surveyed, there will likely be inadvertent discoveries through project implementation. Previously unrecorded properties that are encountered during implementation shall be protected in the same manner as other properties.

It is worth considering potential effects from fire to a pre-contact archaeological site that contains stone artifacts. High intensity fire may be sufficient to crack rock. Most archaeologists would take the viewpoint that when an artifact is present it must not be disturbed or the planned action may cause damage. In this project a new approach is being taken. Stone artifacts are linked to Cultural Vegetation Characteristics which this project means to enhance. Generally speaking, the intensity of prescribed burning will be low to medium, while the intensity of wildfire can reach high intensity and can cause catastrophic effects. By contrast, cultural indicator species, particularly Beargrass and Hazel, grow back particularly strongly after low to medium intensity fire.

When fire occurs via a lightning ignition, it will burn in conditions that are likely to crack rock. Through recovering fire process, function and resource use, including the human use of fire, resources traditionally enhanced by fire can be once again and the tools of the past that are left behind can be more easily located, even though they may have some fire effects. The potential impacts need to be viewed in comparison with the potential effects of wildfire, and also in the context of the overall enhancement of the surrounding Resource Area as a whole. This kind of impact to an artifact, while not necessarily desirable in itself, does not in Section 106 terms mean "adverse effects" to a historic property, and still less in NEPA terms does it mean "significant impacts" to cultural resources. Any potential for damage done by fire reintroduction would be lessened by reintroducing fire in selective climatic conditions. Mitigations such as survey coverage during fire line construction may be good practice.

Manual Treatments

Important cultural and ecological plant species would be targeted for enhancement wherever feasible. Manual treatments involve minimal ground disturbance, and usually have low likelihood of

causing significant impacts to archaeological sites. Intensive surveys were conducted along all roadside units and any areas where it is high probability for archaeological sites to be present. Subsequent treatments utilizing prescribed fire do have the potential to affect archaeological sites. Therefore, no slash piles shall be allowed within site boundaries.

Mechanical Treatments

Mechanical treatments involve varying levels of ground-disturbance and can cause the following effects on cultural resources, including: compaction, movement, breakage, or total destruction of artifacts, features, site stratigraphy (subsurface cultural deposits), or the entire site. These effects can range in intensity and, in some instances, can lead to significant loss of data potential and diminishment of the characteristics that make historic properties eligible to the National Register of Historic Places. Timber harvesting activities, for instance, have the potential to disturb cultural resources when logs are dragged across the ground, skid trails are created, and logs are piled at landings. Additionally, heavy equipment used for timber harvesting operations can cause rutting and compaction, resulting in increased erosion, creating both direct and indirect effects on cultural resources.

Intensive surveys were conducted in all units where mechanical treatments were proposed. Site avoidance strategies and/or site protection measures will be used to address all of these potential effects. Specifically, site boundaries will be flagged as equipment exclusion zones. If it is determined that removing some trees would be beneficial to a site (e.g. restoring an acorn processing site where conifers have encroached upon a mature oak stand), timber harvest may be allowable where the Forest Heritage Program Manager has determined that work can be conducted without causing significant impacts to the site, utilizing On-Site Historic Property Protection Measures (specified in the 2013 Region 5 Programmatic Agreement, Appendix E). All work within site boundaries would be monitored and directed by Forest Service archaeologists and/or Tribal representatives. Therefore, the potential effects are not considered to be adverse.

Prescribed Burning

Prescribed burning has the potential to damage archaeological sites directly and indirectly. Intensive surveys were conducted along all primary fire control lines and other areas where there was high probability for archaeological sites to be present. Fire-sensitive sites (i.e. sites that contain organic materials, exposed wooden architecture, etc.) are at the greatest threat from fire, and can be completely consumed even at low intensities. Sites without flammable features (i.e. prehistoric and historic sites with deeply buried cultural deposits; prehistoric and historic artifact scatters; and prehistoric and historic sites with non-flammable surface features) are less vulnerable to fire, but can be damaged when exposed to high-intensity fire. Fire effects on less fire vulnerable sites include, but are not limited to: cracking of stones, spalling (peeling or separating of outer layer of rock), and sooting.

Fire-sensitive sites with flammable features, such as culturally modified trees, dendroglyphs, blazed trees, cabins, and homesteads, will be protected from fire. Fire-sensitive sites will be protected using a variety of methods, including but not limited to: removing fuels, foaming wooden structures, constructing fire lines around structures, backfiring, and avoiding burning near sites if no other means of protection can be accomplished. Fire control lines (hand lines) will be located such that they do not disturb archaeological features.

Sites with non-flammable resources, including those with stone or metal artifacts, will be considered for prescribed burns. It is not anticipated that significant fire effects would occur to sites with non-flammable resources during a low-intensity prescribed fire. These sites will be included in prescribed burning where the Forest Heritage Program Manager anticipates that work can be conduct-

ed without causing significant impacts to the site, utilizing On-Site Historic Property Protection Measures (specified in the 2013 Region 5 Programmatic Agreement, Appendix E). All work within site boundaries would be monitored by Forest Service archaeologists and/or Tribal representatives.

Burning could indirectly create a higher susceptibility to erosion if a substantial amount of plant cover (i.e. grasses, forbs, pine duff) is burned off of the archaeological sites. However, reducing fuel loads and implementing low to moderate intensity prescribed burns does not cause soil sterilization or hydrophobic soils (as do high intensity wildfires). Low intensity prescribed fires leave some vegetation in place and re-vegetation occurs soon afterwards if soils are not sterilized. The overall effect to the archaeological sites from loss of plant cover is expected to be minor and short-term because vegetation would be expected to regrow across the sites quickly and in a way that enhances their cultural uses.

Temporary roads and landings

Every effort will be made to utilize existing temporary roads and landings to minimize new ground disturbance. Intensive surveys were conducted for all proposed temporary roads and landings. No new temporary roads or landings shall be allowed within site boundaries.

Road repair

Road maintenance have the potential to affect cultural resources similar to those mentioned above for ground-disturbing activities in general. Intensive surveys were conducted along all major roadways, especially on egress/ingress routes. All of these potential effects are addressed through site avoidance strategies and implementing site protection measures. As such, the potential effects are not considered to be adverse.

Legacy road sediment source treatments in project area

Several previously used temporary logging roads in the project area have been identified as active/chronic sediment sources in the Ti Bar and Donahue Focal Areas. These locations would be treated with heavy equipment to promote positive drainage of the old road bed and be physically blocked to motor vehicle use. No heavy equipment shall be allowed within site boundaries.

Water Drafting

In support of fuel reduction treatments, drafting would be discouraged in occupied coho streams and requiring fish screens at appropriate drafting sites. No heavy equipment shall be allowed within site boundaries.

Handlines

Fire control lines (hand lines) shall be located such that they do not disturb archaeological features. All fire control lines along ridges, and other high probability areas for sites, were intensively surveyed. If any additional fire control lines are deemed necessary, fire personnel will work closely with the Heritage Program Manager to determine whether field verification is needed prior to implementation.

Cumulative Effects
When considering past, present, and foreseeable future actions (e.g. mechanical cutting, prescribed burning, etc.), all of the action alternatives have the potential to increase the amount of ground-disturbing activities and prescribed fire across the landscape. Past and present projects that are in and around the current project footprint include: Roots and Shoots Cultural Burn, Orleans Community

Fuels Reduction, Katimiin Thin, and the Offield Mountain Ceremonial Burn Project. All past, present, or foreseeable future undertakings that have the potential to affect cultural resources and TCPs have gone (or will go) through the Section 106 process. Mitigation measures have been or will be implemented to keep ground-disturbing activities out of site boundaries; fuels reduction treatments have been or will be implemented to minimize fire effects on archaeological sites and traditional cultural properties during prescribed burns. As such, the potential cumulative effects on cultural resources and TCPs are not considered to be adverse. In fact, on-going and future collaborative-based ecological restoration projects will benefit the cultural resources across the larger landscape.

Assessment of Effects: No Action Alternative

The project actions need to be viewed in the context of, and in comparison to, wildfire. One of the main objectives of the project is to make the land more fire resilient ("resilient communities"). If the neglect continues and a wildfire runs across the land, a catastrophic wildfire is certain to happen, and is very likely to happen in the near rather than the distant future. In the Happy Camp complex fires of 2014, as in the fires of 2008, several areas were noticed that burned at a sufficient temperatures to kill all the plants and to prevent any significant regeneration. This danger is especially acute because of the overall lack of fire across the WKRP planning area. Few areas have seen five fires in the last century, and large areas have seen none at all. (See the 2014 planning document "The Western Klamath Restoration Partnership: A Plan for Restoring Fire Adapted Landscapes"). The pattern has been set for infrequent, catastrophic fires, instead of the traditional practice of introducing frequent, designed, and regular fires at low intensity. As is well established, both the costs and the direct effects to cultural resources from wildfire suppression are far higher than those of prescribed fires in the same area.

The focal species and the indicator species provide direct and culturally-specific information about the overall health of the landscape. The policy of fire exclusion has resulted in great damage to the landscape: many resources have been left to grow unmanaged, with the result that they are choked with brush. A key component of the landscape that is in dire threat are the Black Oak woodlands, which are easily overtopped and out-competed by Douglas Fir. This reduces habitat for focal species such as Roosevelt Elk.

Because of these factors, the overall landscape is on a trajectory that leads to catastrophic wildfire, extinction of local focal species populations, and total system collapse. The focal species have been selected because they are regulated or as regalia species, and because they are important in discrete segments of the landscape. As was seen with the loss of salamander in 2015, these focal species serve as a warning to people that the bonds holding together people and the animals and plants that they all depend on are loosening, and the loss of one element is likely to result in the loss of significant parts of the ecosystem. Just as surely as the loss of salmon in the rivers and creeks, the loss of key regalia species will lead to the devastation of the people and all the other species that depend on them.

While it is difficult to associate a project with any specific climate change effects, some well-accepted climate change considerations can be outlined. A great increase in the frequency and intensity of catastrophic wildfire has been observed in the last three decades, concomitant with increased riparian and riverine erosion. The landscape and all of its rich cultural resources are at risk for total destruction and devastation in the event of a catastrophic wildfire.

The Somes Bar IFMP is a pro-active and holistic approach to restoring good fire to a landscape, and promises to head off the dangers of catastrophic wildfire. This report documents the central importance of the Somes Bar area, which is the center of the Karuk universe. According to ancestral practice, treating the landscape with fire achieved twin goals: protection against wildfire and promotion

of cultural use species. This report sets out in detail how the Somes Bar IFMP will bring back cultural burning to restore and preserve Karuk culture.