# Forest and Water Resources Climate AdaptationPlan:

# Trinity County, CA

**The Watershed Research and Training Center**

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Model Forest Policy Program | Cumberland River Compact

## Foreword

In 2011, the Model Forest Policy Program (MFPP), the Cumberland River Compact, and The Watershed Research and Training Center came together to create a climate adaptation plan for Trinity County, CA. Development of the plan came about because all parties, led by MFPP, recognized the critical need for local community resilience against the impacts of climate change by protecting forest and water resources. This climate adaptation plan for Trinity County, CA presents the results of a community team effort, deep and broad information gathering, critical analysis and thoughtful planning. The Watershed Research and Training Center took the local leadership role to engage with the Climate Solutions University: Forest and Water Strategies program (CSU) and lead their community toward climate resilience with an adaptation plan that addresses their local climate risks and fits their local conditions and culture. This achievement was made possible by the guidance and coaching of the Climate Solutions University: Forest and Water Strategies program (CSU) created by the Model Forest Policy Program in partnership with the Cumberland River Compact. The goal of CSU is to empower rural, underserved communities to become leaders in climate resilience using a cost effective distance-learning program. The result of this collaborative effort is a powerful climate adaptation plan that the community can support and implement in coming years. The outcome will be a community that can better withstand impacts of climate upon their natural resources, economy and social structure in the decades to come.


## Acknowledgements

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# Section 1: Executive Summary

### Climate Reality

Regardless of the causes, we know that the earth's climate is changing. Already, shifts in average temperatures, precipitation patterns and storm severity are affecting communities around the globe.[i] Unlike many climate plans which are focused on mitigation efforts including strategies to reduce Green House Gas emissions, this plan is focused on adaptation strategies to address those climate impacts that cannot be prevented.

It is imperative that communities begin to consider adaptation techniques to help them transition into the realities of a rapidly shifting climate, as it is becoming clear that mitigation efforts cannot curb changes which are already affecting the way people relate to our environment. The adaptations described in this plan take projected conditions and match them with local competencies to prescribe actions our community can take to prepare the landscape and community for the future.

As communities struggle to adapt to less hospitable conditions they will need to employ ingenuity, science, and perhaps most importantly, a shift in culture moving toward models that emphasize cooperation and local action.

### Trinity County Climate Planning Process and Team

The Climate Solutions University, a program jointly administered by the Model Forest Policy Program and Cumberland River Compact, guides rural communities through local climate adaptation planning processes to develop, and carry out, climate adaptation plans. Through a series of webinars and conference calls, local teams are guided through research, strategy development and drafting action plans.

The Watershed Research and Training Center (WRTC), enrolled in the Climate Solutions University program, has led the Trinity County effort to develop this initial action plan. With limited resources and -timeframe, the WRTC reached out to several community stakeholders to help inform this planning process. However, this plan is meant to act a springboard to action, and a living document - not an end-all be-all plan. More stakeholders need to be engaged in order to develop future strategies and to implement the actions recommended in this plan.

It is the WRTC's intention to seek funding to support the participation of stakeholders in the implementation phase and to increase our own outreach efforts for this project over the next 12 months. In particular, we plan to work with the Trinity Public Utilities District, Trinity County water experts, industrial timberland owners, Board of Supervisors and Community Services Districts as well as the organizations listed in the "Trinity County Team" table (see appendix). Connections with additional United States Forest Service staff will also be cultivated around this project during the implementation phase.

The goal of this climate adaptation plan has been to create a climate focused, additive document that other local planning teams can use to explore climate change in relationship to planning recommendations they may be exploring as part of General Plan updates, Forest Plan Revisions, Community Plan Updates and other planning efforts.

In order to streamline the process for stakeholders and minimize their unfunded engagement, we have worked through email communications, gathering information on existing plans to create synergy and coordination, and have held a meeting with team members to collect additional feedback. Team members have had the opportunity to review the document and will be invited to participate in joint fundraising to support implementation of this adaptation plan.

**Trinity County, Local Context**

Trinity County is in far northern California; at over 2 million acres is it roughly twice the size of Delaware and has a population of less than 14,000 people. There are few places in the west with economies that are more resource dependant. The impacts of climate change on the local environment will have direct implications for the citizens of Trinity County.

While current and past management activities have affected its rich, mixed-conifer forests particularly through the significant departure from the natural fire regime, the majority of the landscape is wild and the impacts and pressures of human development are relatively minimal. The majority of the county is federally managed public land, making the stewardship of these resources imperative not only to the small communities nestled in its mountainous valleys, but to the state and national communities, as critical ecosystem services such as biodiversity, water resources and carbon sequestration are provided by the Trinity forest and its watersheds.

Since 1850, when California became a State, Trinity County has seen wave after wave of boom-and-bust industries. Gold mining reshaped the rivers and the mountains themselves; later ranching and then timbering would leave their mark on the coniferous forests. The construction of the Trinity Diversion of the Central Valley Project has resulted in the diversion of up to 90% of the inflows into Trinity Reservoir to the central valley of California for about 40 years; today about 50% is diverted. Most recently, what is being called the “green rush” in popular culture (referencing the influx of people coming to Trinity County to grow marijuana) is having a significant impact on the ecosystem and the local culture of Trinity’s rural communities, the lasting effects of which remain to be seen.

It is not only the industries which are resource dependent, but the local government as well. As a public lands community, Trinity County lacks a robust tax base. This further complicates the local government’s challenge of providing critical services, such as law enforcement and social services to its far-flung citizens. As a result, national policies such as the Secure Rural Schools and Community Self-Determination Act (which provides federal funding to public lands communities) are of critical importance locally.

**Climate Risks and Opportunities**

This document outlines the current and projected climate changes in Trinity County and explores how they impact forest, water and economic systems locally. While many of the risks identified are not directly caused by climate changes, they will be exacerbated by them.

Projected changes will provide both challenges and opportunities to local systems. In order to manage challenges and take advantage of the opportunities we need to be prepared and begin to take steps to align conditions and capacities today.

Significant risks to resilience in the face of climate change include:

- *Un-natural forest structure stemming from years of fire suppression*
- *Extended and more extreme annual fire season*
- *Decreasing snowpack and decrease in summer stream flow*
- *Diminishing agency and community capacity for stewardship*
- *Social-license and federal management policies are not supporting management at the scale or pace that is needed*
- *Alterations to the dominant vegetation communities*
- *Increased water withdrawals and transfers for regional supplies threaten local water quality and quantity*
- *Increased local water usage and agricultural practices which do not conserve water and properly manage runoff threaten our ability to expand local food systems*
- *Changes in storm intensity and timing creating flooding, erosion and threatening road systems*
- *Unscrupulous and/or uneducated users threaten water quality and quantity*
- *Local wood products industries will disappear and without them capacity for landscape-scale restoration is greatly diminished*
- *Local stewardship capacity will be lost to remote contractors*
- *River and lake-based recreation/tourism sectors will be negatively impacted*

**Trinity County's Adaptation Goals**

***Goal 1: Restore ecological integrity and economic vitality to forest lands and landowners of Trinity County.***

***Goal 2: Restore and maintain water quality and quantity resources to meet local county needs for ecological and economic climate resilience.***

***Goal 3: Establish collaborative county-wide policy and land use management systems that foster forest, water and economic resilience.***

***Goal 4: Create a collaborative approach to community development and planning processes that generates economic resilience and protects quality of life.***

# Section 2: Introduction

### Global Climate Change

Across the globe communities are facing the impacts of climate change, from severe storms to unprecedented drought, heat waves and cooling trends. Throughout history human societies have developed adaptation strategies in order to survive in the myriad ecosystems on earth. In order to survive, we have had to develop strategies to keep warm, keep cool, manage fresh water supplies and gather or grow provisions. By re-envisioning our future and factoring in climate changes as an integral part of the equation, we will have the chance to adapt and remain resilient.

### Climate Change in Trinity County

Trinity County has a Mediterranean climate, which is characterized by hot, dry summers and cold, wet winters. This is a unique climate occurring in only a small percentage of locations on earth.

Two of the key characteristics of our Mediterranean climate are:
1. An annual fire season when vegetation in the hot dry summer is ignited by seasonal dry lightning storms.

2. Summer stream flows which rely on snow runoff from the high country.

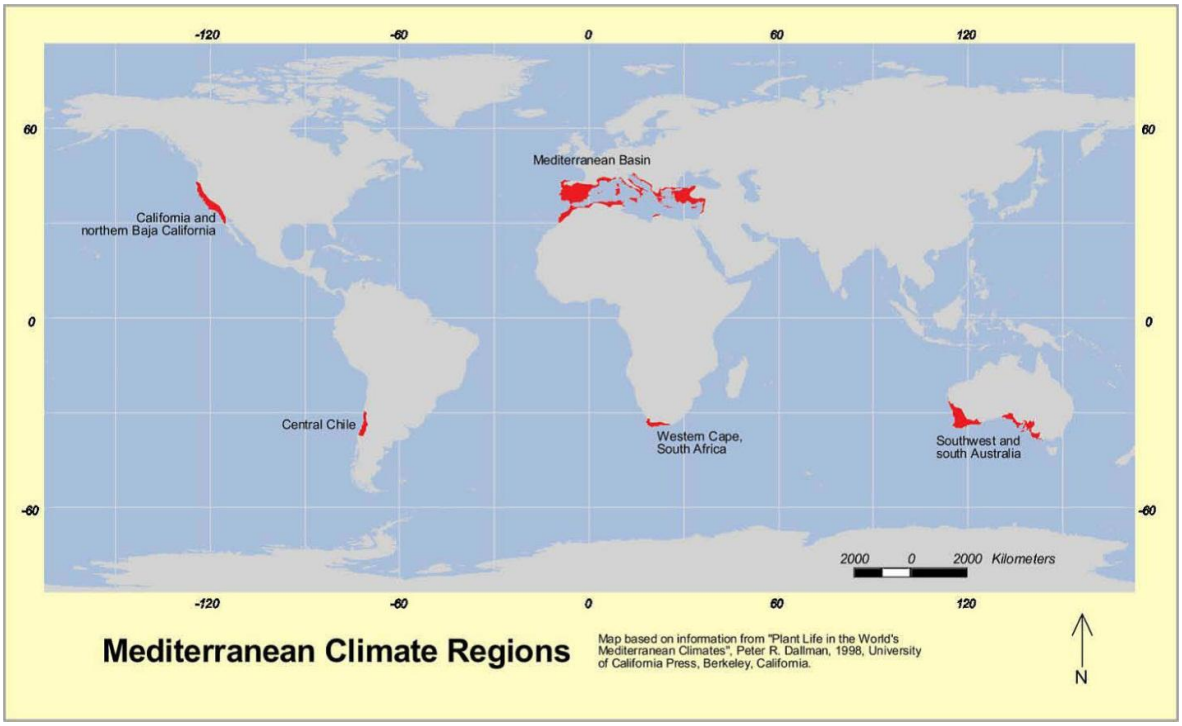


**Figure 1: Map displaying, in red, Mediterranean Climate Regions.**
*Source: Presentation by Carl Skinner, Pacific Southwest Research Station*[ii]

**A New Era of Management**

Contemporary land use and resource management decisions will determine how resilient our ecosystems will be in the future. In order to "buffer" the impacts of climate changes, the Trinity County community has examined the outputs of sophisticated climate models which project future conditions. Future climate scenarios have then been analyzed to develop an action plan which recommends strategies which will preserve and create desired local ecosystem and social functions.

Trinity County's forest and water resources must be managed in a manner that will transition society and the ecosystem into a new era. We must shift from seeking to restore to a historical condition, to a new paradigm aimed at managing for realistic and probable future conditions.

**Local Ownership and Governance**

The majority of Trinity County is federally managed public land. Sizable industrial timber lands and scattered private lands complete the ownership structure

| Land Ownership | Acres | Percentage of Total Acres |
|---|---|---|
| Agricultural Production Zone APZ | 22,442 | 1% |
| Bureau of Land Management BLM | 75,288 | 4% |
| Bureau of Reclamation BOR | 344 | Less than 1% |
| State of CA | 2,904 | Less than 1% |
| Non-Profit Organization NPO | 3,915 | Less than 1% |
| Private PRV | 206,304 | 10% |
| Trinity County TC | 5,453 | Less than 1% |
| Timber Production Zone TPZ | 259,941 | 13% |
| United States Forest Service USF | 1,474,983 | 72% |
| **Total Acres in Trinity County** | **2,051,574** | **100%** |

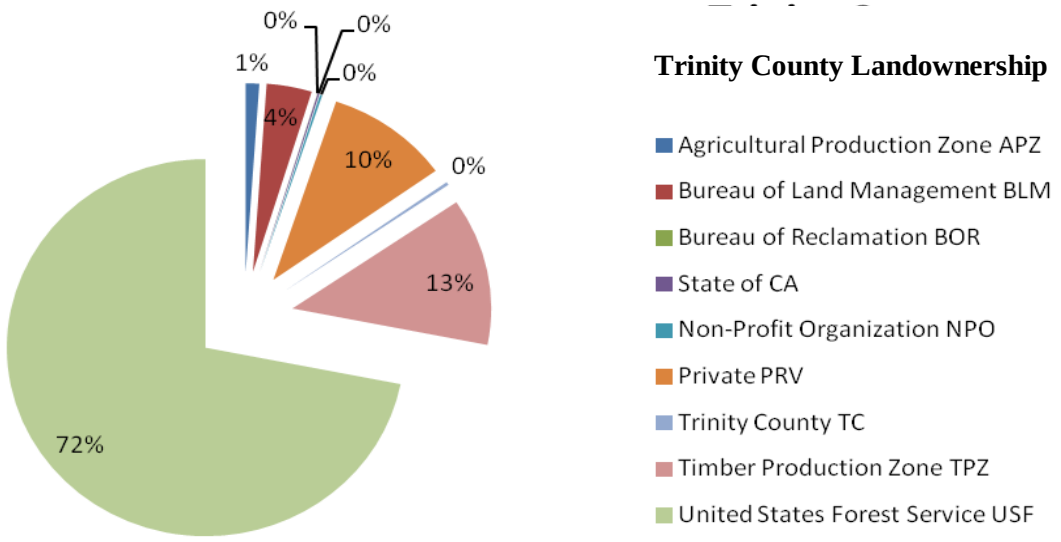


**Figure 2: Trinity County Landownership pie chart and table.**
*Source: WRTC Staff*

Federally managed lands in Trinity County are subject to rules governing activities based on land designations set forth in the Northwest Forest Plan. These designations prescribe uses and activities appropriate for each area. Because of the variety of restrictions on uses and tools that are available to perform work in different areas of the forest, restoration outcomes must be defined in a way that allow for a number of implementation methods to achieve the desired results.

Due to the complicated governance structure within the county, numerous entities are mandated to plan, implement and enforce resource management activities and associated regulations. From County General plans to Forest Plans there are many agencies and organizations working to described current and future desired conditions in our ecosystem and communities.

**Trinity County, CA Ownership Map**

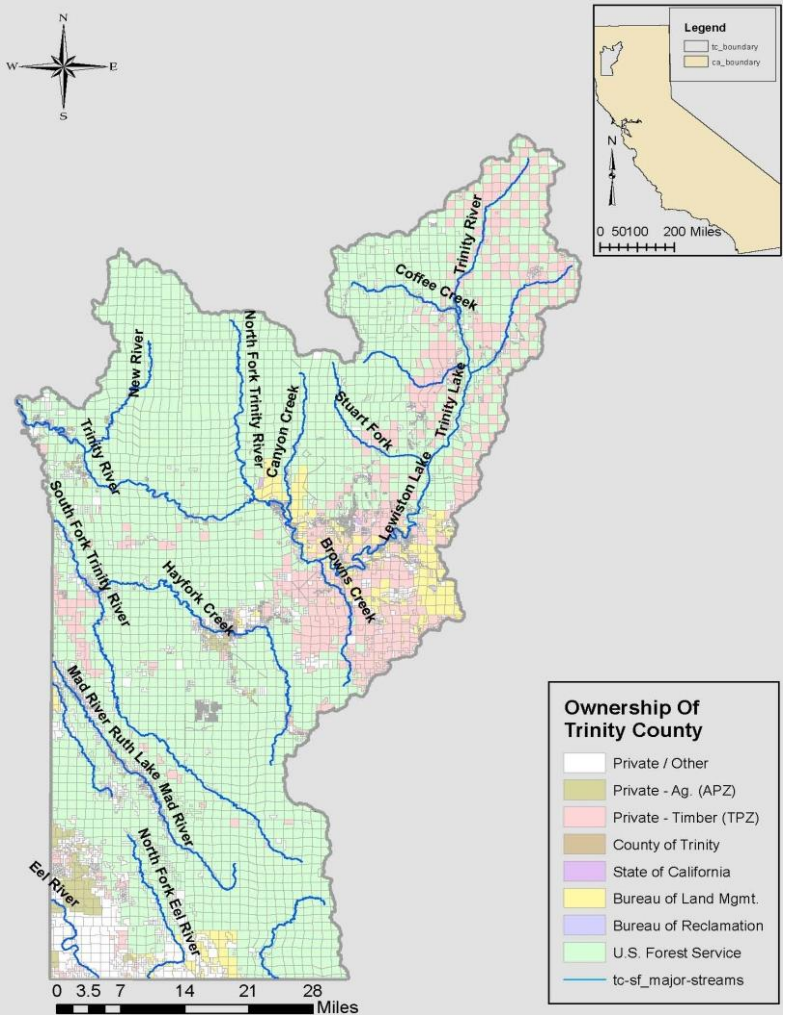


**Figure 3: Trinity County Ownership Map.**
*Courtesy of Marie Buell, Watershed Center GIS technician*

## Trinity County's Climate Risks

Changes in local climate conditions, as modeled in the report "Preparing for Climate Change in the Klamath Basin," show increased annual average temperatures of 2.1-3.6° F by mid-century, with warming trends of up to 2.2-4.8° F in summer months.[iii] Changes in temperature will impact the ecosystem by altering habitat, soil moisture and evaporation processes. These changes will threaten species diversity and range and impact the length of fire and growing seasons, watershed condition and the human/built environment. However, these changes will also provide new opportunities for agricultural products and enterprises.

**Local Climate Change Impacts**

*Communities and resources threatened by an extended and more extreme annual fire season*

*Increasing average temperatures affecting aquatic habitat, human health and vegetation communities*

*Significantly diminished summer stream flows due to decreases in snow pack and damaging floods stemming from more severe storm events in winter months*

Projections of annual precipitation vary by climate model. However, the timing of the precipitation is consistently expected to be even more focused on the winter months of December-February, with decreases in precipitation in the spring, summer, and fall. Although more precipitation is slated to arrive in the winter, when coupled with the warming trend and other factors, we can also expect a loss of 37-65% of our annual snowpack which is critical to high-elevation ecosystems and feeds stream flows in the summer season. Already Trinity County experiences issues related to low summer flows. When climate changes become more pronounced, some local watersheds will struggle to support healthy levels of native aquatic life as well as adequate water supplies for human use.

In addition to climate models, the "Preparing for Climate Change in the Klamath Basin" report utilized vegetation models to project future growing conditions. By mid-century, models project a complete loss of sub-alpine vegetation, the partial loss of maritime conifer (redwood, Douglas fir, and spruce) and the expansion of oak and madrone forest types.

The forest also faces an increase of between 13-18 % in area burned annually.[iv] These shifts in vegetation community and increases in burned area represent an enormous risk to the Trinity Forest. Impacts to habitat, forest structure and function as well as threats to community safety stemming from uncharacteristic wildfire are all likely. With more frequent, larger and more severe fires in our future we need to start having landscape–scale impacts on the condition of the local forest now, or face evacuations and the loss of life and property in the future.

**Figure 4: View of burned area from Hayfork Bally after 2008 wildfires.**
*Photo by Joshua Smith, WRTC*

**Water Resources**

Trinity County's major water resources include the mainstem Trinity River, South Fork Trinity River (SFTR), Mad River, Trinity Lake/Lewiston Lake and Ruth Lake. Much of the Trinity Alps Wilderness drains into the Trinity River, which is 165 miles long, and the Yolla Bolly Wilderness forms the headwaters of the South Fork Trinity, which, at 92 miles long is the longest undammed Wild and Scenic River in California.[v] Ruth Lake Reservoir holds water from the Mad River which flows west to the Pacific Ocean. The mountainous topography creates a great number of smaller tributaries and drainages which provide fisheries habitat, domestic water, and rich riparian corridors.

**Major Watersheds in Trinity County**

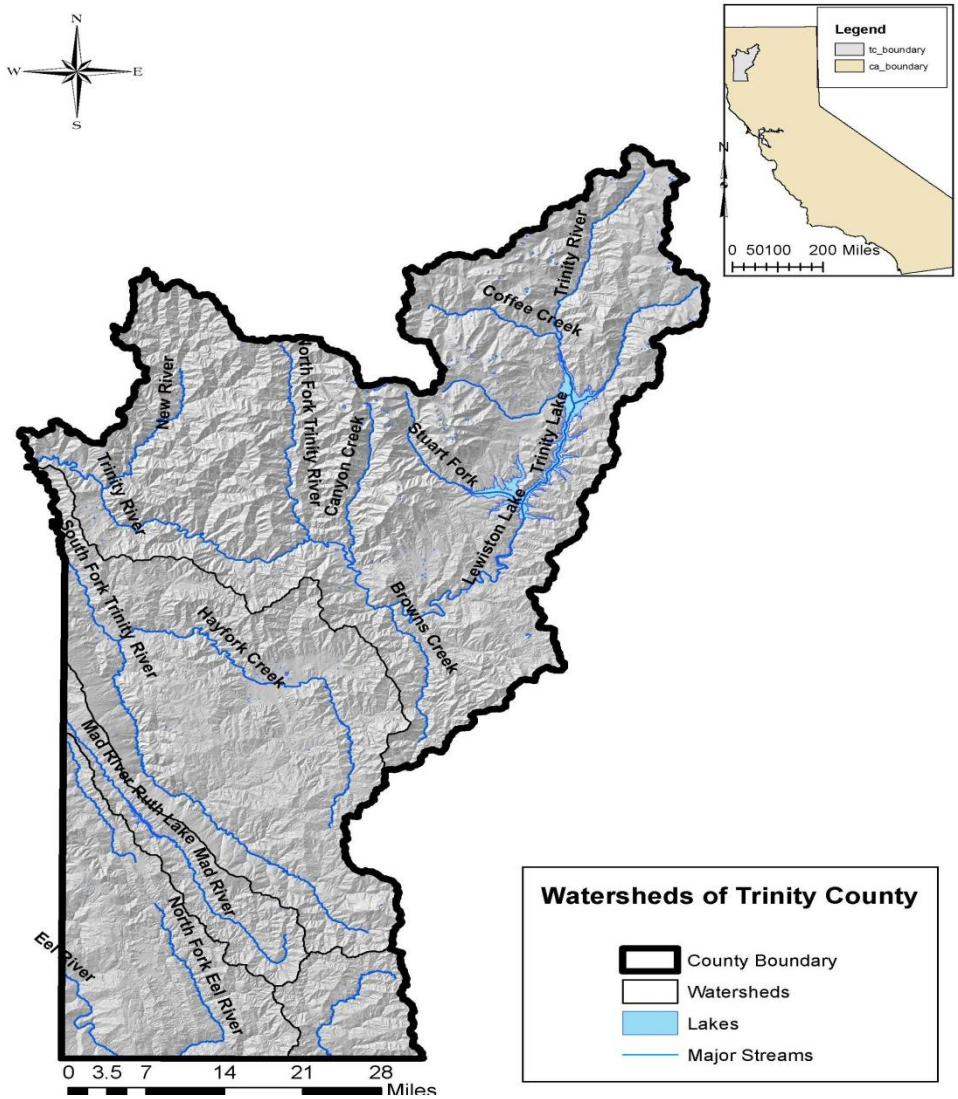


**Figure 5: Watershed Map.**
*Courtesy Marie Buell, Watershed Center GIS technician*

**Forest Resources**

Trinity County is part of the Klamath-Siskiyou Bioregion, a global center of biodiversity, one of seven areas of Global Botanical Significance in North America, and is proposed as a World Heritage Site and Biosphere Reserve.[vi] As one of the most diverse coniferous forests on earth, the Trinity Forest is home to numerous endemic species, many of which rely on the unique geology, topography and a frequent fire regime. The Klamath-Siskiyou lies at the crossroads of a number of ecosystem types, making it well suited for study as many species exist here on the "edges" of their habitat requirements. As stewards of this landscape, Trinity County residents are tasked with determining how to manage for resilience in the face of many challenges. Climate action planning builds a common vision related to the resilience of our forest and water resources.

**Economic System**

Still struggling to recover after major shifts in national forest management policy changed the logging industry (the most recent boom), Trinity County suffered the effects of loss of critical mass in population. Effects of this transition were extreme. In Hayfork, Trinity's second largest community, over 40% of the community's payroll was lost when the local mill closed and associated industries and the school system were affected by the loss of population. Now, over fifteen years later, we're still managing the after-math including generational poverty, substandard housing and minimal social services to address the many needs of residents.

Now, after a long history of extractive industries, we are trying to rebuild the economy on the basis of long-term stewardship. But it is even harder to make this transition as we are also dealing with the fallout and social ills of the preceding decade and a half.

**Threats to Local Forest Resources**

*Extended fire season*

*Un-natural forest structure (over stocking/ladder fuel/decadent stands) stemming from years of fire suppression*

*Diminishing agency and community capacity for stewardship*

*Lack of active restoration and management projects at the scale and pace needed*

*Alterations to the dominant vegetation communities*

# Section 3: Risk Assessment

## Threats to the Trinity Forest

The Trinity Forest has experienced several boom and bust extraction periods that have contributed to the current forest condition. Mining, logging and fire suppression have significantly altered the landscape. Major road decommissioning, thinning and firebreak projects have been proposed and many have been implemented. However, the significant departure from the natural frequent fire regime threatens the heterogeneity and resilience of this forest.[vii]

Traditional cultural burning maintained the landscape which was originally shaped by geology, frequent naturally occurring fire and topography. Like other Northern California tribes, the tribes who lived in the Trinity Forest burned to improve forage for deer, reinvigorate plants such as bear grass and hazel which were used as fiber materials and to improve acorn crops.[viii] Unfortunately, much of the specific spatially explicit knowledge about cultural burning practices has been lost as the number of local native people has dwindled and traditional management has not been practiced.

**Extended Fire Season Coupled with Un-natural Forest Structure**

The cumulative effects of fire suppression, an extended fire season, and forest pathogens adding stress to the system could lead to extremely large, high severity wildfires.[ix] While this landscape is adapted to frequent fire, the overall effect of these additional issues as well as the added social dimensions (Wildland Urban Interface populations, and smoke management) make rebalancing the relationship of fire to this forest imperative.

Increased temperatures and decreased precipitation in fall and spring months will extend the number of days of fire danger. But the impacts of an extended fire season go beyond wildfire risk to include an increase in forest closure days for contractors, days of threat to community safety, days when prescribed fire is not safe to implement, and potential health impacts from wildfire smoke.

When fires do burn, which they inevitably will, we face critical habitat loss, erosion, diminished capacity for carbon sequestration and undermined forest and watershed resilience.

**Figure 6: Burned stand in Little Creek Drainage after 2008 wildfires.**
*Photo by Joshua Smith, WRTC*

**Limited Capacity for Stewardship and a Lack of Active Projects**

Of particular concern, and representing a prime opportunity given associated social agreement, is the restoration of the large number of plantations on federally managed lands. Unfortunately, the Forest Service (FS) is ill funded to perform the work, and the decline of the local wood products industry and contracting capacity further exacerbates the situation.

Diminished federal agency and community capacity for stewardship are major areas of concern. Without agency staff who are experienced and dedicated, who can partner with the community to create a consistent program of work which supports ecological and economic goals, the local National Forest lands will remain in limbo and what is left of local contracting capacity will disappear. The current lack of active projects at the scale and pace needed threaten the forest with increased risk of high-severity fire and contribute to the general declining health of the forest ecosystem.

**Social-license and Federal Management Policies Lacking**

Social-license and federal management policies are not supporting management at the scale or pace that is needed. Without agreement, our actions will be reactive, yield lower values and may be too late to support the social and ecological functions we desire in our community.

While the rich biodiversity of the forest is an asset, it is also a challenge as appropriate restoration activities for one site may vary wildly from another just a few miles away. This fact, coupled with less-than-ideal social agreement makes project planning at scale difficult and the result is the lack of active adaptive management at the scale and pace we need.

**A New World Calls for New Prescriptions**

If our current vegetation management practices are not altered to take climate change into account, we will be managing the forest for desired conditions which are not realistic. Changes in vegetation communities will affect other species composition and fire behavior as well as alter the beneficial uses of the forest. Increases in the range of oak and pine woodlands and madrone and decreases in Douglas fir forests are projected for our forest. This needs to be part of the discussion when designing prescriptions for public and private forestlands.

The Trinities are a complicated system representing extreme diversity. This diversity coupled with the remote and rural nature of the county (limiting pressure from human development) make it well suited to support a wide variety of species. In particular, there are several sensitive and endangered species populations present in the forest. Coho salmon, spring Chinook (likely to be listed in the next few months), Northern spotted owl, and Pacific fisher are just a few in addition to the hundreds of endemic botanical species that thrive in the serpentine soils.

**Sensitive Species Range in Trinity County**

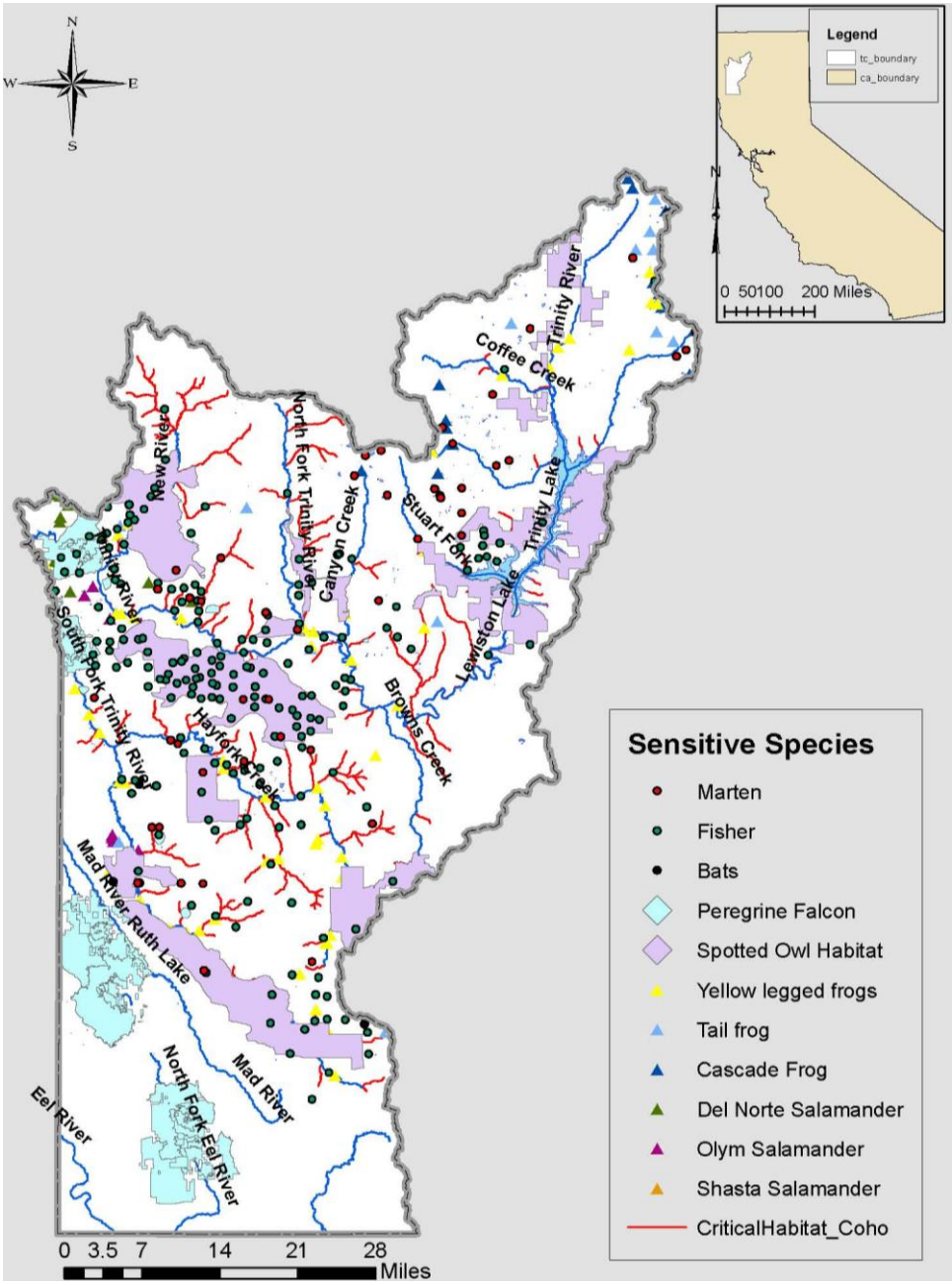


**Figure 7: Sensitive Species Map.**
*Courtesy Marie Buell, Watershed Center GIS technician*

## Threats to Trinity's Water Resources

Trinity County's water resources are called upon to balance domestic needs, local agriculture, recreation, ecological and remote user values. Domestic use varies with large community water supply systems in Weaverville and Hayfork and much of the remaining population relying on ground/surface water.

**Threats to Local Water Resources**

*Increased water diversions for regional supplies threaten local water quality and quantity*

*Increased local water withdrawals and agricultural practices that do not conserve water and properly manage runoff threaten our ability to expand local food systems and other agricultural sectors while maintaining ecosystem health*

*Flooding, erosion (particularly where severe fires have affected slopes) and failing road systems*

*Decreasing source water for summer flows*

*Unscrupulous and/or uneducated users interacting with water resources in a manner that threatens water quality and quantity*

*Unsuitable conditions for culturally important (as well as threatened and endangered) aquatic species*

*Management and investment decisions made with incomplete data*

**Increased Water Withdrawals for Regional Supplies**

Trinity County water quality is important to the rural communities within the county as well as remote users of Trinity County water for domestic and agricultural purposes. Water from Trinity County serves the domestic supplies of North Coast communities, including the water storage in Ruth Lake and the Trinity River's contribution to the Central Valley Project (CVP), which provides Central California agricultural users.

Water resources from the Trinity River watershed are partially diverted to Central California as part of the CVP. "The Trinity Project portion of the CVP was completed in 1963. It takes water from Lewiston Reservoir and pumps it through tunnels to Whiskeytown Reservoir, and then into the Sacramento River. In 1992, the CVP was reformed by Congress to improve habitat for fish and wildlife. Part of the reform includes increasing flows below the dams."[x] This represents a critical ecosystem service that Trinity County provides to California. Our ability to balance the needs of others, with the health and resilience of our ecosystem is sure to be a challenge requiring a strong political voice and careful study.

Increasing regional demands for water resources and existing infrastructure to deliver Trinity County water resources to the Central Valley in CA could threaten local water supplies. Less water staying in local watersheds will impact human communities and species that rely on high functioning watersheds. Local water resources are greatly affected by remote entities and interests.

**Increased Local Water Withdrawals**

Much of the County is zoned with a Critical Water Resources Overlay that requires proof of adequate water resources of appropriate quality prior to division of a parcel. A copy of the County's zoning ordinance has been provided in the appendix of this document.

Weaverville and Hayfork are served by municipal water districts. In Hayfork, Ewing Reservoir, fed by Big Creek, holds 800 acre feet of the community's domestic water.[xi] While the downtown area is serviced by the water district, there are an equal number of residences outside of the water district which rely on wells and surface water for their domestic use. While local water use does not currently exceed capacity, excessive and ill-timed water withdrawals are impacting watersheds.[xii]

The Weaverville Community Services District provides water to Weaverville, Douglas City and Union Hill. Serving 3,800 residents, it is the larger of the two municipal water districts and delivers an average of 632,000 gallons of water to its customers per day.[xiii]

The expansion of local agriculture is one of the opportunities identified given projected climate conditions. However, this opportunity will be limited by a lack of water resources unless we can create new local storage capacity, through expansion and renovation of the municipal water systems as well as small scale (home/farm) size systems. With adequate water storage, proper conservation practices, and agricultural methods which limit runoff we should be able to greatly expand the local food system and agricultural sectors while maintaining ecosystem health.

**Figure 8: Ewing Reservoir in Hayfork.**
*Photo by Joshua Smith, WRTC*

**Flooding, Erosion and Failing Road Systems**

Storms are projected to become more intense, with more precipitation falling as rain and an increase of rain-on-snow events which will speed snow melt and lead to increased sediment delivery in watersheds.

Developments near watercourses will be at-risk to flooding and measures to protect or relocate resources and limitation on building in at-risk areas should be considered.

Often, local road systems are blocked due to slides after strong storms; this trend will continue and given projections of stronger storms we expect further impacts to local and regional travel.

**Source Water for Summer Flows**

Significant decreases in snow pack, with more precipitation falling as rain and rain-on-snow events speeding snow melt, will impact summer stream flows.

Our watersheds are already impacted by low summer flows, and further decreases in water will strain ecological health and effect recreational uses which rely on abundant clean water supplies to attract users.

Water adventures including kayaking, world class fishing and multiple lakes supporting houseboats make up a strong seasonal recreation economy in Trinity County. These pastimes also contribute to the quality of life year-round residents enjoy and cite as one of their motivations to live in Trinity County. Changes to summer flows will affect the recreation economy.

**Figure 9: Snowpack in the Trinity Alps Wilderness, projected to decline by up to 65% due to climate changes.**
*Photo by Joshua Smith, WRTC*

**Unscrupulous and/or Uneducated Users**

The lack of enforcement related to water rights/withdrawals poses a problem that impacts local water resources. Users who are either unscrupulous or simply uneducated have recently been engaging in water withdrawals that do not support water quality and quantity. Additionally, pollution from improper agricultural practices has impacted watersheds.

A two-fold solution is required to manage this issue and it is important that we launch efforts to manage water use now, as climate changes will further exacerbate seasonally constrained water supplies. We must begin an education campaign while also pursuing enforcement measures to ensure that water resources are protected and wisely used to balance the needs of all of the beneficial uses of the watershed.

**Unsuitable Conditions for Aquatic Species**

Trinity's water is critical to threatened and endangered salmonid species as well as a host of other native aquatic species. Changes in stream flow will affect their ability to survive here.

Forest lands, including large wilderness areas, dominate the landscape. However, many of Trinity County's water bodies have been listed as impaired by the Environmental Protection Agencies' Clean Water Act. The following impairments have been listed for Trinity County watersheds: mercury, temperature and sediment. Sources of impairments include water diversions, habitat modifications, removal of riparian vegetation, stream bank destabilization, and other unknown sources.[xiv]

While the watersheds exhibit these impairments, they function relatively well, providing habitat for a wide variety of aquatic species. Watersheds within the county, such as the South Fork Trinity River may represent some of the best potential habitat for recovering populations of salmonids. Further study of the limiting factors and specific populations is warranted.

Additional opportunities for research in the area include monitoring natural adaptation of species to warming conditions as some area salmon have been observed exhibiting "abnormal behavior" which may indicate natural adaptation to less-than-ideal conditions.

As water resources are further strained by use and climate changes, we should work to preserve high quality habitat for native aquatic species.

**Figure 10: Hayfork Creek in the fall.**
*Photo by Joshua Smith*

**Figure 11: Volunteer diver at the annual salmon count dive on the South Fork maneuvers around a large logjam.**
*Photo by Joshua Smith, WRTC*

**Management and Investment Decisions Require Data**

While some of Trinity County's watersheds have been studied extensively, the lack of consistent and comprehensive data for all of the important watersheds in the county represents a problem for managers and decision makers.

Identifying areas without sufficient data and developing appropriate monitoring programs will be beneficial as we adapt to the changes projected for our watersheds. The data collected should prove useful as hard decisions about investments in restoration are made.

## Trinity County's Economic Situation

Trinity County is one of the most resource-dependant counties in the country. Prior to changes in national policy, the local economy was driven primarily by timbering. Several agencies and organizations have been working for the past 15 years to make a transition from logging to a restoration economy.

Little occurs economically in Trinity County that is not directly connected to the local ecosystem. From what remains of the local wood products industry to tourism and agriculture, our major industries are all directly tied to the local environment.

**Threats to Local Economic Systems**

*Local wood products industries will disappear and we won't be able to carry out the landscape-scale restoration we envision without them*

*Local stewardship capacity and community benefits of federal contracts will be lost to remote contractors*

*River and lake-based recreation/sport sectors will be negatively impacted by diminished stream flows*

*A lengthened and warmer growing season will alter local agricultural opportunities, creating new opportunities for diverse crops*

*Our economy is struggling and weak. With more residents, a more diverse and robust economy could be supported*

*Populations such as ours with retirees and unskilled impoverished individuals as the majority, have diminished capacity to build an effective stewardship workforce*

**Local Wood Products Industries are Disappearing**

The last sawmill left in the county is a large employer, second only to Federal and State agencies. Unfortunately, the lack of consistent log supply threatens this important business.

Without local wood products industries to economically support landscape-scale treatments, restoration becomes less economically feasible and the likelihood of implementing critical projects is reduced. Once lost, it is very difficult to rebuild industry capacity.

**Figure 12: Small Diameter Utilization, post and pole peeler in Hayfork.**
*Photo by Annette Hale, WRTC*

**Local Contracting Capacity**

After changes to National Forest management changed the local economy in the mid-1990's, much of the local contracting capacity was lost. Contactors relocated, retired or changed professions.

Now, as we attempt to jumpstart a new kind of federal land management focused on restoration, we are missing a critical component: local contractors.

Entrepreneurs willing to invest in a business model that requires innovation, flexibility and experience are hard to come by. We need to work with local individuals to develop local capacity for contracting.

**Recreation Sector**

Trinity County is far off the beaten path, but the beauty of our forest and water resources attracts visitors who enjoy the lake/river based sports and backcountry hiking/packing opportunities in Trinity County.

Declines in summer river flows and lake levels will negatively affect our recreation and tourism economy. The actions negatively affecting the recreation/tourism sector will also impact year-round residents who enjoy the natural amenities and quality of life they afford.


**Figure 13: The Watershed Center's Executive Director, Nick Goulette, displays his catch.**
*Photo by Joshua Smith*

**Agricultural Opportunities**

As the growing season extends, different crops will thrive in Trinity County. Preparing for these changes will help farmers plan and could result in the expansion of local food systems by attracting more producers for the farmers markets, etc. Managing water supplies will be key as we move forward in expanding the local agricultural economy.

**Small Populations Do Not Support a Robust Economy**

Diffuse, small populations do not support a robust local economy. A slightly larger population would help support diverse enterprises. Given current demographics, where few individuals have much disposable income, the kinds of businesses that can be supported are limited. Even more limited are individuals with capital to start a business.

Without an increased population (particularly of working age families) it will be difficult to create the stewardship workforce needed to carry out the restoration economy vision as well as support other economic sectors.

A shift in demographics could justify investments in improved infrastructure such as expanding community water supply systems and improving housing.

Overcrowding and exploding growth are not concerns as land ownerships, remoteness and lack of infrastructure limit the amount of growth possible.

**Appropriate Workforce**

Populations such as ours with retirees and unskilled impoverished individuals as the majority, have diminished capacity to build an effective stewardship workforce. We need to address our workforce issues if we want to support landscape-scale restoration. By working to instill a stewardship ethic in local youth and encouraging them to remain in the area we will be able to bolster the workforce needed for restoration implementation. These jobs need to be high-quality living-wage jobs in order for the workforce to be properly supported and to gain momentum for long-term local stewardship.

# Section 4. Analysis of Findings and Strategic Options

In general, Trinity County has the professional natural resource management knowledge necessary to adapt to climate changes. Several high-capacity agencies and organizations operate within the county and are focused on the management of local forest and water resources. The county also has several experts in policy who have longstanding relationships with national agencies and coalitions. This elevates the Trinity County voice and represents a significant resource.

**Major Strategic Challenges**

*Coordination between agencies and across jurisdictions to act at the scale and within the time frame that is required*

*Insufficient funding for collaboration, public outreach and education*

*Diminishing capacity to practice adaptive management and implement resource management projects with local crews*

*Complicated jurisdictions and remote nature of the area present challenges to governance and enforcement*

## Forest Resource Strategies

**Issue: Un-natural Forest Structure and Extended Fire Season**

***Problem: Unnatural forest structure (over stocking/ladder fuel/decadent stands) stemming from years of fire suppression and past management practices threatens the forest with uncharacteristic fire – projected to burn at a higher severity over a larger area. These conditions also leave the forest vulnerable to pests and disease.***

***Strategy: Restore forest structure so that fire can play its historically positive role on the landscape.***

In order to manage the threats that un-natural forest structure present, we can utilize the expertise of several local organizations that are dedicated to building capacity for local forest management which would address forest structure. Many of these organizations are networked with regional coalitions that can help provide successful models and policy recommendations. Additionally, local networks such as the Fire Safe Council and our well-developed Community Fire Protection Plan are assets.

Recent investments from organization such as The Nature Conservancy to build local capacity (particularly for the implementation of prescribed fire) should prove useful in increasing our ability to

scale up action. Meanwhile, the re-launched local forest collaborative group is growing social agreement and building positive relationships.

Compounding the threats stemming from unnatural forest structure are projections that we will experience an extended fire season with more fires that are more severe. Local assets to manage the wildfire situation include a comprehensive Community Wildfire Protection Plan (CWPP) from which many projects have been implemented; the fact that we are building local capacity for prescribed fire and initial response to wildfire;, and local political advocates day-lighting the dangers to decision-makers.

We need more coordination between agencies and organizations for "all-lands" projects in order to address forest health at scale. We also need to address the fact that building local support doesn't directly translate into action; outside entities often block projects on public lands where there is local agreement.

While fire danger and threat has not been sufficiently addressed at scale, we believe that with management including prescribed fire and mechanical treatment, the forest can be stewarded in a manner that will allow fire to play a positive role. Through the collaborative development of a landscape –scale restoration program, we could implement the projects necessary for the forest to handle the fires which are inevitable.

We have a good track record of securing funding for private and public lands projects. However, funding sources we have typically relied on may no longer be available. Good progress has been made toward implementation of many CWPP projects and their success can be built on.

**Issue: Insufficient Agency Capacity**

***Problem: Low staffing levels and frequent turnover impact the USFS's ability to manage the Trinity Forest. Diminished capacity to manage federal lands has a huge impact on a public lands community such as Trinity County.***

***Strategy: Support a management infrastructure to effectively manage the landscape across jurisdictions.***

The local USFS district offices have recently hired more staff and they are increasingly using local partners to help get critical work done. We have many local connections and access to national policymakers and the Washington office of the USFS which we can use to help address this issue.

However, high rates of turnover, targets and measures which do not support restoration, and unwieldy bureaucracy are a few of the challenges facing the local Forest Service.

By moving good national policies such as stewardship contracting and the Integrated Resource Restoration budget line item forward, we may make headway on the policy barriers to agency effectiveness.

Trinity County organizations and citizens can also continue to foster good relationships with new forest staff and build the skills to help the Forest achieve common goals through training woods workers as well as offering NEPA planning and other professional services.

**Issue: Address the Lack of Projects**

***Problem: The lack of active restoration and management projects is a threat to forest resilience and community economic wellbeing.***

***Strategy: Active adaptive management guides projects and is occurring at a scale and pace appropriate to resource needs.***

The solvency of what's left of our local contracting and forest products businesses and supporting industry is threatened by lack of supply and consistent contracts. We have local organizations which are committed to training local woods workers and supporting budding entrepreneurs, but without a consistent program of work, new businesses cannot get off the ground. Additionally, our local workforce has changed (we have fewer skilled and trainable willing workers.)

We have a local track record of capturing federal contracts and hiring local people to implement that work. This has grown stewardship skills and, hopefully, an ethic of stewardship responsibility. But without projects to practice their skills and stable jobs, those stewards will have to engage in other work. The last remaining local sawmill is owned by people committed to the community. We need to honor that commitment by working as a community to support that business. Currently the sawmill has difficulty getting sufficient supply. There is very limited local supply. Export market competition compounds the problem.

Despite the many federal land management dollars captured locally, there are many more federal contracts that still go to remote contractors leaving the local community without most of the benefits of those investments. We should continue to support national policies that support contracting strategies that benefit local communities.

The USFS can work with the new forest collaborative group to design a program of work that is landscape-scaled and socially acceptable.

**Issue: Changes in Vegetation Communities**

***Problem: Vegetation shifts will occur without management preparations, leaving the landscape less able to transition.***

***Strategy: Current and future restoration targets and strategies are based on projected climate impacts including those to vegetation communities***

Agencies are beginning to realize that management needs to shift from historical targets to take future conditions into account. Forest Service researchers are working on several studies that should inform management and new prescriptions to take projected vegetation shifts into account should be integrated into the practice of all managing organizations and companies.

We need to collaboratively develop these new prescriptions and work with agencies and companies to apply these over the affected landscape.

**Issue: Unhealthy Riparian Vegetation**

***Problem: Lack of riparian management has left some riparian areas unhealthy leaving water quality and quantity unsupported by healthy riparian corridors.***

***Strategy: Riparian and upland vegetation is managed in a manner that supports water quality and quantity.***

Regional traditional ecological knowledge and research focused on riparian management can be used to inform practitioners. This coupled with the growing local capacity for prescribed fire (one of the suggested methods of management) could help us manage riparian areas which have been neglected.

Another asset is the strong capacity and ample funding for management of the mainstem Trinity River.

Some of the challenges we face include multiple jurisdictions, complicated regulations and a lack of experience implementing some of the techniques that may need to be used. Local capacity to coordinate and learn more about such treatments exists through a grant that supports watershed coordination.

Funding support to train local crews to implement prescribed fire (potentially including in riparian zones) has been secured by The Watershed Center and partnerships with riparian re-vegetation programs, including local nurseries with native plants are in place through the Trinity River Restoration Program and the Resource Conservation District.

**Issue: Social License and Federal Policy**

***Problem: Social-license and federal land management policies are not supporting management at the scale or pace that is needed.***

***Strategy: Manage federal lands based on a set of shared restoration and resilience principles for the Trinity Forest implemented to achieve multiple resource and community benefits.***

We will not be able to adapt to climate impacts in a timely and pro-active manner if we cannot address agreements about management principles. We have a high level of understanding about what the constraints on federal management are, as well as access to regional models where successful landscape-scale strategies are being implemented. We also have several local organizations that are working to

convene stakeholders to define areas of agreement, but collaboration takes a lot of time and investment, and it is difficult to sustain. The length of time it takes to take a project from conception to implementation is too long given the backlog of work needed on this forest, especially when faced with a rapidly shifting climate.

National programs, such as the Collaborative Forest Landscape Restoration program have provided other communities with the resources needed to begin implementing large-scale restoration programs. If this funding is renewed, it is an opportunity to access monetary support for restoration at scale. Our local collaborative group has been reconvened and is making positive progress. Successful local stewardship contracts can act as small-scale models of a potential landscape-scale program of work.

## Water Resources Strategies

**Issue: Regional Demands on Trinity Water**

***Problem: Regional demands for water resources and existing infrastructure to deliver Trinity County water resources to the Central Valley in CA could threaten local water supplies.***

***Strategy: Out-of-area water transfers are limited to levels that will not jeopardize the ecological health or local community values.***

Increased water diversions for regional water supplies would further threaten water quality and quantity. While current rulings require a minimum amount of water to flow into the river rather than be diverted to the Central Valley Project, we should work to ensure that out-of-area diversions are limited.

There is a high capacity, well-funded organization charged with managing the water in the mainstem Trinity. But extremely politically powerful water interests will increasingly seek more water to supply Central Valley water demands.

We need to conduct research on minimal instream flow needs and grow County capacity to advocate for local water supplies.

**Issue: Local Demands on Water Supplies**

***Problem: Increased water withdrawals and diversions for activities which do not conserve water and/or properly manage runoff threaten our ability to expand local food systems and other agricultural sectors such as vineyards.***

***Strategy: Secure water supplies for increased local domestic and agricultural use.***

There has recently been an increase in local demand for water resources due to increased agricultural use. While there are many examples of good local agricultural practices, there are also many people who have not implemented best practices.

Agencies such as the Natural Resources Conservation Service and University Extension provide funding and educational resources to agricultural producers, but the lack of regulatory enforcement remains an issue for those not wishing to comply with applicable laws and regulations. We've experienced a large influx of water users related to marijuana production many of whom are negatively impacting stream health through illegal diversions, withdrawals and pollution.

We haven't yet reached all of those who would like to implement better practices through education programs and are interested in incentive programs and education funds to continue those efforts.

We also believe that there is a market for local businesses focused on water conservation and catchment systems, which could supply many people with the water they need.

**Issue: Increased Storm Intensity**

***Problem: Increased winter storm intensity will result in flooding, erosion (particularly where severe fires have affected slopes) and failing road systems.***

***Strategy: Areas prone to damage from higher than average flows are identified and mitigation measures are planned and implemented.***

Our road systems are vulnerable, and erosion is very likely to increase and will be difficult and expensive to control. We need to address travel and flood hazard in the Safety Element of the General Plan. As well as work with CA Transportation Dept. to think about strategies for the CA Highway routes.

Our low population and limited flood-plain development make increased storm intensity less of an issue to other types of community infrastructure (such as neighborhoods in flood plains, etc.)

**Issue: Water Rights and Enforcement**

***Problem: Unscrupulous and/or uneducated users will interact with water resources in a manner threatening water quality and quantity; the lack of enforcement related to water rights/withdrawals will further exacerbate the situation.***

***Strategy: Seasonal water withdrawals (summer particularly) are limited, especially during times critical to fish passage.***

***Strategy: Citizens are educated about, and held responsible to use, proper water conservation techniques and abuse of water resources declines.***

We have an opportunity to deal with this issue now (as it has come to light given the increased usage related to marijuana cultivation.) The regulations and best practices already exist; it is just a matter of supporting enforcement institutions as well as social and market pressures to use best practices.

The remote and vast nature of our county makes enforcement logistically difficult. A culture of "lawlessness" and pattern of loose enforcement have reinforced negative behaviors. With an illicit economy heavily impacting this issue, the danger level in enforcement is elevated.

We can act by supporting enforcement efforts, educating citizens regarding regulations and providing them with best practices as well as mitigation measures to repair past damage, creating social agreement on usage to encourage self-policing, and encouraging market strategies that capitalize on "ecosystem friendly" practices.

**Issue: Aquatic Habitat**

***Problem: Conditions will make habitat unsuitable for culturally important (as well as threatened and endangered) aquatic species.***

***Strategy: Water quality and quantity are restored to a level that supports a diversity of aquatic species including spring Chinook, Pacific lamprey and steelhead; while also providing access and amenities supporting public recreation***

We have local and regional capacity to study salmonid species and we have made significant investments in restoration projects designed to support salmonid populations.

In some critical areas, such as the South Fork Trinity River, more study (and/or investment) may be warranted. There is need for a limiting factors analysis and genetics study on salmon in the South Fork.

Existing watershed impairments coupled with climate changes may be too great to overcome, and some salmonid species may no longer be able to survive here. However, we should study salmon in the county to learn more about natural adaption to warming conditions and better understand the various species' ability to survive in a range of conditions.

We should continue to work toward improving water quality and quantity to preserve habitat.

**Issue: Lack of Consistent Comprehensive Data**

***Problem: Lack of consistent and comprehensive data in watersheds throughout the County may lead to management and investment decisions being made with incomplete data.***

***Strategy: Comprehensive data is available for all areas in the county and is used to make management decisions.***

We have high capacity and great deal of resources invested in parts of the county.

The Watershed Coordinator positions (funded by the State of California) can help connect local data to regional data keepers.

Collection of data that is efficient, crosses ownership boundaries, and is presented in a manner that makes it usable for a variety of purposes costs a lot of money and requires careful design, coordination and a level of flexibility when implementing that is hard to achieve. We should continue to support initiatives and policies which fund watershed coordination and seek local support for such programs.

Additionally, coordination with regional entities such as the Klamath Basin Monitoring Program in order to supply data which can be used to make basin-wide decisions will be important.

## Economic System Strategies

**Issue: Wood Products Industry**

***Problem: A weak wood products industry can provide little economic support to our communities and will not support the envisioned "restoration economy" if they cannot stay in business.***

***Strategy: Landscape-scale restoration strategies include plans to support a variety of local wood products businesses and contractors.***

The sawmill in Weaverville remains active and the owners are committed to keeping the business in Trinity County. But a lack of consistent supply and competition for logs with overseas export markets threatens their viability.

The Trinity Business Incubator (designed for value-added wood products manufacturing) is available for tenants, but the lack of local entrepreneurs and capital to start businesses and keep the investments local remains a challenge.

**Issue: Local Contracting Capacity**

***Problem: Diminished local contracting capacity hampers economic growth. Without local contractors, community benefits (especially economic benefits) of restoration will not be realized.***

***Strategy: Local contractors are supported by a consistent program of work including projects on the national forest***

Several local organizations have built capacity to capture federal contracts and run crews, but few independent experienced contractors remain in the county. The bonding and registration requirements

required for Federal contracts are prohibitive, and without a consistent program of work, contractors can't afford to invest in equipment or train crews.

**Issue: Agriculture**

***Problem: We won't be able to take advantage of the projected extended growing season and associated opportunities due to water availability constraints.***

***Strategy: A local food system, including small family farms, supports Trinity County's population with the majority of food needs***.

Many local people are interested in agriculture, and the projected lengthened and warmer growing season should provide them with new opportunities for diversified crops. We also have considerable suitable agricultural acreage in the Hayfork area, Hyampom, and South County.

However, the water supply situation for local agriculture is far from ideal. We don't have enough water storage, or infrastructure to support the opportunities that changes in the growing season will present if we do not begin to manage our water resources more deliberately.

**Issue: Rural Economic Reality**

***Problem: Diffuse, small populations do not support a robust local economy. Without changes to our population, we won't be able to diversify and improve our economy.***

***Strategy: The local population needs to increase in some areas of the county (Hayfork for instance) to support a more diverse and viable economy.***

There is a great deal of interest in improving the local economy. There are organizations and individuals who have been working on economic issues for many years, but significant changes have proven difficult to make.

The Public Utilities District has a mandate to support economic development and several local groups hope to work with them to implement projects.

We are caught in a vicious circle where our lack of affordable housing and living wage jobs keep our population low yet without more people we won't be able to motivate improved housing or staff new enterprises.

**Issue: Local Workforce**

***Problem: Lack of a skilled stewardship workforce weakens prospects for positive ecological conditions. We won't be able to carry out the restoration that needs to be done without a new workforce.***

***Strategy: Economic opportunity and high quality of life make Trinity County an ideal place for families and working age people to live.***

Without a new workforce, the work won't get done, or it will go to out of the area contractors; neither scenario supports our community. The vision for a restoration economy is held by many organizations in the county, and several have created training programs to create a skilled workforce.

We have access to models where stewardship workforces have been successfully cultivated, but the lack of a consistent program of work keeps a smoothly functioning local stewardship workforce out of reach.

Additionally, the lack of local entrepreneurs to lead the workforce challenges progress in the stewardship workforce, with a local population dominated by those in generational poverty and retirees, we need to attract and retain citizens who want to be leaders.

We must also work to change the local culture which has encouraged youth to leave the area to seek "a better life" elsewhere after high school.

# Section 5. Action Plan

**Goal 1: Restore ecological integrity and economic vitality to forest lands and landowners of Trinity County**

***Forest Objectives:***

*Restore forest structure so that fire can play its historically positive role on the landscape. (long-range 10+ years)*

- *Design future restoration targets and strategies based on projected climate impacts including those to vegetation communities.(short-term 1-3 years)*
- *Establish landscape-scale restoration strategies that include plans to support a variety of wood products businesses and contractors. (mid-term 2-5 years)*
- *Support local contractors with a consistent program of work including projects on the national forest. (mid-term 2-5 years)*

**Goal 2: Restore and maintain water quality and quantity resources to meet local county needs for ecological and economic climate resilience**

***Water Objectives:***

- *Manage riparian and upland vegetation in a manner that supports water quality and quantity.(long-range 10+ years)*
- *Limit out-of-area water transfers to levels that will measurably protect and preserve ecological health and local community value. (mid-term 2-5 years)*
- *Establish guidelines for water management decisions that secure sufficient water supplies for increased local domestic and agricultural use according to future projections.(mid-term 2-5 years)*
- *Identify and take steps to mitigate damage to areas prone to damage from higher than average flows. (short-term 1-3 years)*
- *Limit seasonal water withdrawals, especially during times critical to fish passage.(short-term 1-3 years)*
- *Educate citizens and hold them responsible to use, proper water conservation techniques. (short-term 1-3 years)*
- *Restore water quality and quantity to a level that supports a diversity of aquatic species and that provides access and amenities that support public recreation. (long-range 10+ years)*

**Goal 3: Establish collaborative county-wide policy and land use management systems that foster forest, water and economic resilience**

***Management/Policy Objectives:***

- *Create an agreed upon set of shared restoration and resilience principles to guide management decisions. (short-term 1-3 years)*
- *Establish a multi-jurisdictional forest management infrastructure to effectively manage the landscape and land use decisions across multiple jurisdictions. (mid-term 2-5 years)*
- *Guide projects using active adaptive management tools that relate on a scale and pace appropriate to resource needs. (short-term 1-3 years)*

**Goal 4: Create a collaborative approach to community development and planning processes that generates economic resilience and protects quality of life**

***Economic and Community Development Objectives:***

- *Establish a local food system, including small family farms that can support Trinity County's population with the majority of its food needs. (long-range 10+ years)*
- *Support recruitment efforts to increase the local population in some areas of the county (Hayfork for instance) enough to support a more diverse and viable economy. (mid-range 3-5 years)*
- *Generate initiatives for economic opportunity and high quality of life to make Trinity County an ideal place for families and working age people to live.(mid-range 3-5 years)*

# Section 6. Outcomes

In order to affect lasting change at scale we must work within the local, regional and national networks of community-based forestry practitioners, prescribed fire practitioners, community development champions and cultural and ecological researchers we are part of. By offering perspectives on general plans, forest plans, county and state regulation governing land use, renewable energy, certification and national budgeting we can move forward a new vision of local resilience.

Through implementing this plan and continuing to engage in discussions about climate resilience with partners, we expect to achieve the following outcomes:

- *Forest Resources*: Public, private industrial timber lands and other private lands will be managed in a manner which supports their resilience and diversity, prepares them for naturally occurring fire and provides economic and social benefits to local communities.

- *Water Resources*: Water resources will be utilized in an efficient manner which supports ecological, agricultural and recreational uses. Community water supply capacities are increased and best practices for water withdrawals are practiced.

- *Economic Situation*: The local restoration economy has further developed. Citizens are connected to the landscape and actively practicing stewardship values. A thriving agricultural sector supports many of the basic needs of local residents.

- *Education*: Outreach and education within the local school systems, government and other organizations and agencies will be accomplished through workshops and public meetings. Collaborative group processes will guide forest management and education of the public and stakeholders in regards to those activities.

- *Public Policy*: The county general plan will be updated. The Hayfork Community Plan will incorporate information from this planning process. We will seek support for federal policies such as stewardship contracting and Secure Rural Schools.

- *On-the-ground conservation*: A prescribed fire program will be initiated and burns will take place on public and private lands. Thinning projects will be planned and carried out on public and private lands in order to create a forest structure that is resilient to fire. Community Wildfire Protection Plan projects will be implemented which will create infrastructure (fire breaks etc.) and make the forest more resilient. Wetlands will be enhanced and stewardship of local water resources will be a focus in more areas of the county. Water usage for agricultural and other purposes will be timed and best practices will be shared. More of the existing codes and regulations will be enforced concerning water usage.

The Watershed Center will lead the implementation phase of this adaptation process, beginning by seeking funding to support the participation of partners in the action plan. However, even before more funding is secured, the Watershed Center will convene the team members listed in appendix B to begin taking action toward climate resilience.

# Section 7. Appendices

## Appendix A: Detailed Action Plan

### Goal 1: Restore ecological integrity and economic vitality to forest lands and landowners of Trinity County.

### Forest Objectives:

#### F1: Restore forest structure so that fire can play its historically positive role on the landscape.

***Objective F1.1: Implement CWPP projects that create infrastructure that will allow fire back while keeping communities safe.***

Strategy: Seek funding to implement and maintain projects.

- Action: WRTC and RCD submit partnership proposals for implementation of Hayfork Area and Down River CWPP projects.
- Action: WRTC with NRCS to identify opportunities for private landowner projects that connect to, or are a part of, CWPP projects.

*Strategy: Work with policy makers to support some kind of County payments legislation as much of the funding for past CWPP project implementation has been through the RAC.*

- Action: WRTC work with Jim French to set meetings and write/sign-on to policy letters related to county payments.
- Action: WRTC work with RVCC public-lands group to write issue paper on this topic.

***Objective F1.2: Grow local capacity to conduct prescribed burning and initial fire response***

*Strategy: Seek additional funding to build on WRTC funding (for cross jurisdictional municipal watershed Rx burn and growth of prescribed fire program).*

- Action: Write three grants to support the WRTC fire program
- Action: WRTC engage rest of county in the model burn to create shared learning opportunity and scale-up.

*Strategy: Grow county-wide partnerships between agencies like CALFIRE, USFS, WRTC, RCD, and local Volunteer FD's.*

- Action: WRTC will create MOU documents for sharing gear, combining trainings, and limiting liability. Work with agencies to sign these agreements.

- Action: WRTC seek funding for cross-jurisdictional burns which will support all partnering entities.

*Strategy: Work with the Northern CA Prescribed Fire Council.*

- Action: WRTC invite all Trinity County entities to attend annual meetings and participate in working groups.

***Objective F1.3: Create smoke management policies and health guidelines which support community health while balancing the need for active fire.***

*Strategy: Work with the Air Quality District to collect more relevant localized data on air quality.*

- Action: WRTC contact North Coast Air Quality and find out if there are any programs that would support additional monitoring stations in Trinity County.

*Strategy: Work with local and regional health practitioners and organizations to offer guidelines on smoke safety and precautions people at-risk can take.*

- Action: WRTC contact local hospital and ask about their current educational information on smoke. Determine if they would have the resources to partner to develop some literature if the existing information is not sufficiently tailored to the local audience.

- Action: WRTC contact the Hoopa tribe to find out about the home filter loan program they had for tribal members during the 2008 fires. Determine if such a program would be appropriate for individuals at-risk in Trinity County.

*Strategy: Work with policy makers to deepen the conversations around smoke to consider not only health impacts, but to balance the reality and need for fire as well.*

- Action: WRTC draft language that describes the complex relationship that Trinity County has with fire. This information should educate people about fire ecology and the health impacts of smoke inhalation. Disseminate this information on websites and through local venues such as the Trinity Journal newspaper.

***Objective F1.4: Treat the forest (either with fire, mechanical or hand treatments) so that it is resilient.***

*Strategy: Develop social agreement for projects.*

- Action: WRTC lead Trinity Forest Collaborative Group in developing restoration guidelines and building trust and relationships.

- Action: Collaborative group members outreach to out-of-area stakeholders who have an interest in the Trinity Forest.

*Strategy: Help the USFS with project planning by recommending appropriate projects.*

- Action: WRTC hold field tours with collaborative group members and USFS personnel to discuss zone of agreement and potential projects.

*Strategy: Connect land managers (private, federal and industrial) with relevant science and researchers who can help them develop and implement effective projects.*

- Action: WRTC invite land manager to Prescribed Fire Council meetings (which are designed in part to connect researchers and practitioners).

**F2: Design future restoration targets and strategies based on projected climate impacts including those to vegetation communities.**

***Objective F2.1: Work with USFS and BLM foresters to discuss silvicultural prescriptions, work with them and researchers to develop guidelines which are appropriate to future conditions.***

*Strategy: Hold field tours to discuss appropriate management in the context of climate change.*

- Action: WRTC host two field tours with the public and county-wide stakeholders to discuss impacts of climate change and future management.

*Strategy: Invite researchers to present their findings regarding the latest in silvicultural prescriptions at appropriate conferences and events.*

- Action: WRTC work with the Mid-Klamath Watershed Council to secure researchers whose work on forest management prescriptions and climate impacts are relevant to local managers to present at their Klamath Fire Ecology Symposium.

- Action: WRTC plan and host a science symposium about the Trinity Mountains including prescription development given climate impacts.

*Strategy: Work with agency leadership to create agreement around management for future conditions, as opposed to historical condition.*

- Action: Trinity Forest Collaborative, meet with forest leadership, planners and other staff to discuss prescription development.

***Objective F2.2: Work with private industrial timber lands owners to learn more about their management plans and discuss opportunities for new markets such as carbon trading.***

*Strategy: Engage private industrial timber land owners in a conversation about their mid and long-term management plans.*

- Action: WRTC meet with SPI and other timber companies and ask them about their management plans. Engage them in this project.

- Action: WRTC host a conference and invite carbon market experts, and others engaged in innovative management to speak. Invite a variety of local stakeholders to the conference including industrial timberland owners.

***Objective F2.3: Work through the Natural Resources Conservation Service and UC Extension to develop a variety of prescriptions for private landowners which are appropriate to future conditions and flexible to accommodate a variety of landowner needs.***

*Strategy: Host a conference and invite carbon market experts, and others engaged in innovative management to speak.*

- Action: Work with NRCS, US Extension and others to invite private landowners to the conference and ensure that there is appropriate content for that audience.

*Strategy: Learn more about what values private landowners are seeking from their properties and consider how the prescriptions developed for federal lands may apply or may need to be adapted.*

- Action: Talk with NRCS, UC Extension and individual landowners to learn more about what would add value to private landowner's knowledge and practice. Incorporate this information into the planning of the conference.

*Strategy: Support the efforts of the NRCS and UC Extensions to meet the needs of private landowners as they manage their lands in a manner which supports individual goals as well as provides for the conservation of local forest and water resources. Consider ways to coordinate with and add-value to investments being made on private lands through these programs and individual efforts.*

- Action: Through "all-lands" agenda item at Fire Safe Council meetings, discuss on a regular basis opportunities for synergy.

**F3: Establish landscape-scale restoration strategies that include plans to support a variety of wood products businesses and contractors.**

***Objective F3.1: Create collaborative process to develop landscape –scale strategy***

*Strategy: Contractor and wood products industry representatives participate in the Trinity Forest Collaborative, giving input on the landscape-scale strategy from an economic perspective.*

- Action: WRTC engage industry stakeholders in landscape-scale planning process.

**F4*:* Support local contractors with a consistent program of work including projects on the national forest.**

***Objective F4.1: Generate community support for the USFS planners in developing their program of work to improve likelihood of successful projects (projects not caught in litigation).***

*Strategy: The Trinity Forest Collaborative outreaches to the greater Trinity County community to grow local support for projects.*

*Strategy: Trusting relationships are built between USFS planners, staff and community members.*

**Objective F4.2: Mentor and prepare local contracting companies to compete for federal contracts.**

*Strategy: Outreach to existing and potential entrepreneurs regarding federal contracting regulations and how to be competitive.*

*Strategy: Offer assistance to companies who would like to build contracting capacity for things like ORCA registration and other paperwork requirements.*

***Objective F4.3: Enhance USFS planning capacity and trusting relationships to help create a pipeline of projects.***

*Strategy: Build relationships with FS planning staff.*

- Action: Integrate planners with other circles of the community to engage them socially and build connections.

## Goal 2: Restore and maintain water quality and quantity resources to meet local county needs for ecological and economic climate resilience

### Water Objectives:

**W1: Manage riparian and upland vegetation to support water quality and quantity.**

***Objective W1.1: Work with researchers and regional practitioners of traditional management techniques to develop riparian management projects such as prescribed burning and planting.***

*Strategy: Compile relevant research and contact experts to consult regarding specific representative areas of concern.*

- Action: WRTC engage a graduate student to work on a project which would explore regional traditional ecological knowledge applicability to local restoration objectives.

*Strategy: Develop a "test project" which engages multi-stakeholders including researchers and traditional ecological knowledge.*

- Action: WRTC work with regional practitioners of traditional management, local tribal members, researchers and the collaborative group in aspects of the prescribed burning project in the Hayfork Valley to explore, among other objectives, local application of traditional management methods.

*Strategy: Implement the test project and monitor results. Modify as necessary and share best practices basin-wide.*

- Action: WRTC monitor the Hayfork Valley prescribed burn and disseminate results through the collaborative group, organization websites, local newspaper and other media outlets.

*Strategy: Seek funding to implement successful strategies for riparian management determined through test projects and relevant research.*

- Action: WRTC apply for funding based on successful outcomes in test projects, and to implement *more test projects.*

***Objective W1.2: Monitor the effects of upland and riparian management on water quality and quantity.***

*Strategy: Develop a monitoring protocol and team to monitor several active projects.*

- Action: WRTC collect and vet existing monitoring protocols and select methods which will serve local interests.

- Action: WRTC engage stakeholders in monitoring program. Obtain commitments from them to participate.

*Strategy: Develop method for sharing results and disseminating learning from the monitoring.*

- Action: Explore existing forums such as Trinity River Restoration Program and Klamath-Bain Monitoring Program to determine if these will be a good fit for the data. If so, work with them to develop monitoring.

*Strategy: Implement monitoring and share results per plan.*

- Action: WRTC work with monitoring team and supply information to regional data stewards.

- Action: Applicable agencies, use data to make management decisions, seek funding support and develop additional monitoring questions and studies.

***Objective W1.3: Secure funding to implement successful riparian management strategies on a basin-wide scale.***

*Strategy: Create strong partnerships and MOU's so that when funding is identified, parties are ready to apply for joint funding.*

- Action: WRTC identify partnerships needed for riparian management techniques.

- Action: WRTC gather sample MOU's and outreach to appropriate entities.

*Strategy: Notify all potential partners about desire to find funding for this work. Enroll people in seeking partnership funding.*

- Action: WRTC outreach to stakeholders about this opportunity.

**W2: Limit out-of-area water transfers to levels which will measurably protect and preserve ecological health and local community value.**

***Objective W2.1: Future court rulings on diversions limit amount of out-of-area water diversion.***

*Strategy: Engage experts, including TRRP and Trinity River advocates to learn more about the record of decision and threats to our watershed stemming from the CVP.*

- Action: WRTC engage the TRRP and other Trinity River experts such as Tom Stokely in this climate adaptation process.
- Action: WRTC revise strategies and actions for protecting local water resources based on their input and expertise.

***Objective W2.2: Generate monetary support for the County for supplying the ecosystem service of clean water to the CVP.***

*Strategy: Learn more about the County's agreements with the CVP and models of ecosystem services payments.*

- Action: WRTC engage TRRP and other experts in this climate adaptation project and discuss county support from the CVP to learn more about opportunities and politics.

*Strategy: Based on information gathered in the strategy above, develop actions which will support county interests and the ecological integrity of our watersheds.*

- Action: WRTC adapt objectives and actions based on input.

***Objective W2.3: Monitor local ecological health on a county-wide basis and evaluate water transfers in light of this information.***

*Strategy: Support the monitoring of various organizations throughout the basin and network them through organizations such as the Klamath Basin Monitoring Program and the CRIMP.*

- Action: Through watershed coordinator positions, collect master list of all active and inactive monitoring projects in the county. Use this list to network the programs with regional entities and each other.

*Strategy: Engage in policy discussions regarding out-of-area transfers and ensure that relevant local ecological data is available as part of those discussions.*

- Action: WRTC work with TRRP and other experts such as Tom Stokely to determine opportunities for policy engagement.

***Objective W2.4: Evaluate and consider local community value and water needs when determining out-of area transfers.***

*Strategy: Assess local water supply needs for the next twenty years taking climate impacts into consideration.*

- Action: Seek funding support for the Five Counties Salmonid program to complete Water Budgets (like the one already completed for parts of the mainstem Trinity area).
- Action: WRTC engage researchers and/grad students in development of local agricultural potential survey including water supplies needed to realize this capacity.

*Strategy: Engage in policy discussions regarding out-of-area takes and ensure that information about local water supply needs is factored into decisions.*

- Action: WRTC work with Trinity River experts to determine what the policy opportunities are.

**W3: Establish guidelines for water management decisions that secure adequate water supplies for increased local domestic and agricultural use.**

***ObjectiveW3.1: Complete water budgets for areas of the County which have not yet been studied.***

*Strategy: Seek funding for the Five Counties Salmonid program to perform Water Budget Studies for areas of the county where such a study has not been completed.*

- Action: 5C with support from WRTC, investigate funding opportunities and apply for grants.

***Objective W3.2: Add additional water storage/treatment capacity and range of services to existing community water systems.***

*Strategy: Enroll water district managers and their boards in this adaptation project.*

- Action: WRTC contact water district managers and arrange to be on a board meeting agenda to present this plan and determine next steps.

*Strategy: Through general and community planning processes develop recommendations regarding the expansion of water service district boundaries.*

- Action: General Plan and Community Plan Committees, discuss opportunities to expand water systems with county planners and community plan groups based on outcomes of meetings with water district managers and boards.
- Action: Water Districts with support from WRTC, investigate funding options for upgrading and expanding the storage and treatment capacity of both districts.

**W4: Identify and take steps to mitigate damage to areas prone to damage from higher than average flows.**

***Objective W4.1: Protect and enhance wetland features are throughout the county in order to support habitat, improve water quality and provide for flood control.***

*Strategy: Implement model project on county-owned wetlands near Hayfork High School.*

- Action: WRTC with County, secure agreement for use of county property for purposes of wetland "outdoor classroom" and community access point for Hayfork Creek.
- Action: WRTC continue outreach with community and other stakeholders to develop vision for wetland.
- Action: WRTC seek implementation funding for protection and enhancement measures.

*Strategy: Expand this model to private landowners who wish to create conservation easements, capitalize on mitigation funding from wetlands alterations in other areas, or simply to conserve wetlands on their property.*

- Action: WRTC with NRCS, develop materials in conjunction with other agencies on best practices for wetland conservation.
- Action: WRTC and NRCS, identify existing wetland areas and target those landowners for education.

***Objective W4.2: Promote culverts and bridges that are appropriately sized and located to handle increased intensity of storm flows.***

*Strategy: Map culverts and bridges of concern (using road inventory data and gathering data gaps as needed).*

- Action: Watershed Coordinators, investigate existing data sets and plans to determine if more mapping is necessary.

  *Strategy: Coordinate with appropriate agencies to prioritize areas at-risk for improvement.*

- Action: Watershed Coordinators, work with USFS, Cal Trans and others to implement priority improvement projects.

**W5: Limit seasonal water withdrawals especially during times critical to fish passage.**

***Objective W5.1: Develop water storage for private landowners, particularly agricultural users, which they fill using roof-top catchment and other systems which do not adversely affect low-flow stream functions.***

*Strategy: Contact regional water systems businesses and seek a mentor for local roofing and gutter companies to develop local catchment and water storage businesses.*

- Action: Through the Trinity Business Incubator program seek water systems businesses to occupy a portion of the facility.

*Strategy: Share educational resources through the local newspaper, school system, and public workshops on water use and storage issues.*

- Action: Through watershed coordinator positions collect and disseminate information.

*Strategy: Host science panel to share effects of water takes during critical fish passage and low flows with the public.*

- Action: Through watershed coordinator positions engage regional scientists and organizations to come present at a series of community workshops on wise water use.

*Strategy: Create a micro-grant program to help landowners offset the costs of water catchment systems.*

- Action: WRTC seek funding to administer a micro-grant program in conjunction with new local water system business to supply landowners with water conservation and catchment systems.

*Strategy: Work with the County to ensure that ordinances encourage water catchment and storage as appropriate.*

- Action: Work with County Planning Department to explore any challenges to the water conservation and catchment strategy outline above and take action to amend those if necessary.

***Objective W5.2: Support enforcement of water regulations and punishment of illegal water takes.***

*Strategy: Alert appropriate agencies to the illegal water withdrawal issues locally.*

- Action: Watershed Coordinators, develop communications piece (case story) that describes condition of illicit water withdrawals and asks regulatory agencies to take action.

*Strategy: Provide education regarding water laws so that citizens are informed and aware of applicable regulations.*

- Action: Watershed Coordinators, engage regulatory agencies by inviting them to attend community workshops and offer information.

*Strategy: Develop a tagging system, similar to firewood, for water tanks so that origin of the water can be traced and illegitimate takes can be punished.*

- Action: Watershed Coordinators, explore this concept with regulatory agencies and other stakeholders by holding a meeting. If deemed viable create work plan to put strategy into action.

***Objective W5.3: Expand community water districts and increase capacity to meet increasing demands on water.***

*Strategy: Enroll water district managers in participating in this adaptation project.*

- Action: WRTC invite them to join in the net phases of this process and work with them to adapt sections relevant to community water supply systems based on their needs and insights.

*Strategy: Through general and community planning processes develop recommendations regarding the expansion of water service district boundaries.*

- Action: Through public input process, voice support for extension of community service districts.

*Strategy: Learn about funding options for upgrading and expanding the storage and treatment capacity of both districts.*

- Action: WRTC work with managers to learn about current opportunities and help support their improvement and expansion efforts through letters of support, etc.

***Objective W5.4: Educate and motivate Trinity County residents to be knowledgeable about water conservation techniques and use them regularly in domestic and agricultural applications.***

*Strategy: Create an outreach and education program regarding water conservation.*

- Action: Through watershed coordinator positions and partnerships with local school districts, offer public and school-based water conservation series of workshops/lessons.

*Strategy: Launch the outreach and education program and monitor its effectiveness.*

- Action: Watershed coordinators schedule and carry out workshops/lessons. Perform after-action reviews to improve future iterations.

**W6: Educate citizens and hold them responsible to use proper water conservation techniques.**

***Objective W6.1 Gather educational materials and applicable regulations and laws and disseminate to county residents.***

*Strategy: Collaborate with regulatory agencies to collect applicable information.*

- Action: WRTC contact regulatory agencies regarding project.

- Action: WRTC and regulatory agencies develop comprehensive guides to local regulations and share this information through real estate offices, County planning/building office and other agencies and organizations.

***Objective W6.2: Engage the State Water Board and other responsible parties in effectively monitoring and enforcing illegal water withdrawals.***

*Strategy: Attract the attention of regulatory agencies through stories that illustrate issues.*

- Action: Watershed Coordinators work with their agencies to identify possible illustrative cases.
- Action: WRTC and others contact State Water Board representatives regarding the problem.
- Action: Share stories watershed coordinators produce with the agencies and ask them to take action.

***Objective W6.3: Educate citizens regarding local water issues and inform them about impacts of their use.***

*Strategy: Water issues are highlighted through local media, in schools and through community workshops.*

- Action: Watershed coordinators write monthly articles for the Trinity Journal as well as press releases for other publications such as the "Conservation Almanac."
- Action: Watershed coordinators make presentations about water conservation and local watersheds in local schools.
- Action: Watershed coordinators host two community workshops on water conservation, timing withdrawals and on-site storage.

**W7: Restore water quality and quantity to a level that supports a diversity of aquatic species (including spring Chinook, Pacific lamprey and steelhead) and that provides access and amenities which support public recreation.**

***Objective W7.1: Water monitoring programs are developed and supported.***

*Strategy: Coordinate with school systems, community volunteer groups and agencies to develop programs.*

- Action: Watershed coordinators outreach to schools, Rotary clubs and agencies regarding opportunity to monitor water quality.
- Action: Watershed coordinators host trainings for volunteers and classroom teachers.
- Action: Watershed coordinators develop monitoring schedule and protocols for volunteers.

- Action: Watershed coordinators collect data gathered by volunteers and deposit it into local and regional databases.

***Objective W7.2: Implement road decommissioning and improvement projects to address sediment impairments.***

*Strategy: Coordinate with proper jurisdictions to discuss implementation plans for improvements and upgrades.*

- Action: RCD and USFS invest in improvements and decommissioning of priority areas.

***Objective W7.3: Implement wetlands enhancement projects to improve water quality.***

*Strategy: Begin with the county-owned wetlands in Hayfork near the High School. Use this project as a model.*

- Action: WRTC work with county and other partners to implement the wetlands enhancement plan for the wetlands near Hayfork High.
- Action: WRTC and county outreach to other wetland owners regarding the successes and lessons learned through the project.

***Objective W7.4: Develop riparian vegetation management programs and implement county-wide to improve water quality and quantity.***

*Strategy: Work through NRCS to get private landowners enrolled in riparian vegetation programs.*

- Action: NRCS distribute educational materials to wetlands owners regarding incentives for protection and enhancement of these systems.

***Objective W7.5: Support public access to waterways in order to create opportunities for public recreation and appreciation of our water resources.***

*Strategy: Through zoning recommendations and memorandums of understanding with private and public land owners/managers create arrangement which limit liability and provide for access to waterways.*

- Action: Work with Hayfork Community Plan committee to designate areas as open space and promote access for public use of Hayfork Creek.

***Objective W7.6: Complete studies regarding the current populations of aquatic species as well as limiting factors and implement recommendations for habitat improvements***

*Strategy: Seek cooperative funding for species studies.*

- Action: WRTC work with partners to write three grant proposals for species studies in the South Fork Trinity River.

## Goal 3: Establish collaborative county-wide policy and land use management systems that foster forest, water and economic resilience.

## Policy Objectives:

### P1: Create a set of agreed upon restoration and resilience principles for the Trinity Forest which are implemented to achieve multiple resource and community benefits.

***Objective P1.1: Develop and record shared restoration and resilience principles.***

*Strategy: Work through the Trinity Forest Collaborative to develop the principles.*

- Action: Trinity Forest Collaborative, agendize development of these principles and prepare for the meeting by gathering samples and model documents.

***Objective P1.2: Create a social "contract" which will allow stakeholders to participate in the envisioning and articulation of this "zone of agreement" and methods by which they may disagree.***

*Strategy: Support structure/governance which creates the forum by which these principles are articulated and agreed upon.*

- Action: WRTC document the "governing principles" of the Trinity Forest Collaborative Group. Define operating guidelines and enroll USFS Forest leadership in this structure.

### P2: Establish a multi-jurisdictional forest management infrastructure to effectively manage the landscape and land use decisions across multiple jurisdictions.

***Objective P2.1: Conserve forest lands through maintenance of land use allocations and the enforcement of applicable environmental laws and regulations.***

*Strategy: Land use and zoning recommendations limit unnecessary development in the WUI.*

- Action: Community Plan and General Plan Committees, recommend in the Hayfork Community Plan, and County General Plan revisions that development be clustered and that developments outside of service districts, such as water, fire and power service areas be limited by requirements to supply such parcels with adequate services prior to approval for residential development.

- Action: Community Plan and General Plan Committees, provide opportunities for development within preferred areas of the county by recommending zoning accordingly.

*Strategy: Applicable regulations and agencies are coordinated to effectively govern forest management.*

- Action: WRTC work with CALFIRE and NRCS to develop and disseminate educational materials regarding timber management plan requirements.

- Action: County government and USFS, seek funding and new partnerships to support the clean-up of illicit marijuana grows on national forest lands.

***Objective P2.2: Foster agreements and cooperation between agencies and organizations to better coordinate landscape-scale restoration strategies.***

*Strategy: Hold regular "all-lands" coordinating meetings*

- Action: Bi-monthly at Fire Safe Council meetings agendize "all-lands" coordination.

*Strategy: Seek partnership funding to implement projects across jurisdictions.*

- Action: Fire Safe Council members, develop partnership proposals for three CWPP projects (one in each major area of the county).

***Objective P2.3: Encourage policies which facilitate partnerships between agencies and organizations and which allow for innovative arrangements.***

*Strategy: Work through the RVCC to design and adapt models of innovative partnership between federal agencies and other stakeholders.*

- Action: WRTC work with the Public Lands Group to describe facilitated partnership models, present this to the WO partnership office to share with Regional and Forest offices.

*Strategy: Develop recommendations and provide feedback on applicable policies.*

- Action: As policies are developed, WRTC engage in public feedback processes to provide the perspective of an organization that has been a federal partner.

**P3: Guide projects using active adaptive management that occurs at a scale and pace appropriate to resource needs.**

***Objective P3.1: Develop landscape-scale restoration strategy and seek funding to support its implementation.***

*Strategy: Use the Trinity Restoration Collaborative as a forum to develop the strategy.*

- Action: Trinity Forest Collaborative, introduce the idea of a landscape-scale plan as well as the proposal the USFS submitted to the CFLRP and use that as a starting place for discussing what an ideal restoration plan would look like.

- Action: WRTC, use the outputs from the Landfire/Efroymoson workshop modeling to determine where investments in restoration would be most impactful. Share the findings with the collaborative group to aid in the development of the strategy.

*Strategy: Utilize other networks and partnerships, such as the Fire Learning Network, Fire Safe Council and Watershed Councils to provide information and participate in the development of the landscape-scale restoration strategy.*

- Action: WRTC develop and implement a six-month communications and outreach plan to engage these partners and others in the development of the landscape-scale strategy.

*Strategy: Seek funding through existing networks and partnerships for the implementation of the restoration strategy.*

- Action: Trinity Forest Collaborative help Shasta-Trinity National Forest apply for funding through the National Forest Foundation and CFLRP program (if it is funded) to implement the strategy once it has been drafted.

- Action: WRTC, use the Nature Conservancy investment in prescribed fire capacity in Hayfork as a proving grounds for techniques (both on-the-ground restoration techniques and also delivery/governance methods) to enroll stakeholders and funders in the model of landscape-scale restoration through a network of innovative partnerships.

***Objective P3.2: Create local multi-party monitoring capacity and begin to implement monitoring in all projects.***

*Strategy: Work with the Weaverville Community Forest Steering Committee to learn about the development and implementation of their monitoring process. Use this knowledge to guide the creation of a county-wide monitoring program.*

- Action: Weaverville Community Forest and WRTC, set up meeting with WCF, Ann Moote (contractor who helped develop monitoring project) and WRTC to do an after action review of monitoring process development.

- Action: WRTC, summarize results of meeting and learning and use when developing monitoring program for Trinity Forest Collaborative.

*Strategy: Collect models and research on multi-party monitoring programs in public lands communities throughout the west to inform ourselves on best practices and pitfalls.*

- Action: WRTC outreach through Dry Forest Investment Zone network to gather this information.

- Action: WRTC enroll third party in condensing information and sharing models.

*Strategy: Secure agreement with the federal agencies to participate in a county-wide monitoring effort which they would participate in on various levels.*

- Action: WRTC meet with Forest personnel including rangers, forest supervisor and other key players. Discuss the development of monitoring program and secure/define agreement to participate.

***Objective P3.3: Work with the USFS and BLM to articulate local targets for restoration.***

*Strategy: Talk with the agencies about what their current mandates and performance measures/target are.*

- Action: WRTC gather this information and share with agency and other stakeholder partners so that all parties understand the constraints and expectations of the federal agencies.

*Strategy: Work with the Washington Office of the FS to articulate issues with the current performance measures and targets system*.

- Action: WRTC at February meetings in Washington, discuss the Integrated Restoration Line Item proposal and political strategies for moving it forward.

*Strategy: Provide recommendations for improvements to the targets/performance measures system.*

- Action: WRTC continue to work with the IRR coalition to take opportunities to support IRR and speak out about performance measures and targets.

***Objective P3.4: Engage industry stakeholders and wood products sector in discussions about supply issues.***

*Strategy: Meet with industrial reps to discuss their needs and further assess the current supply situation.*

- Action: WRTC invite industrial representatives to a meeting hosted in Trinity County to discuss supply issues and their businesses.

*Strategy: Work with organizations such as the NCIRWMP to complete supply studies for proposed small-scale biomass projects in the North State.*

- Action: WRTC apply with the NCIWRMP (and other agencies as possible) to complete supply studies for proposed small-scale biomass projects in Northern California.

## Goal 4: Create a collaborative approach to community development and planning processes that generates economic resilience and protects quality of life.

### Economic and Community Development Objectives:

**E1: Establish a local food system, including small family farms, which can support Trinity** County's population with the majority of food needs.

***Objective E1.1: Ensure farmers have access to suitable farm land.***

*Strategy: Surveys of suitable farming land landowners are completed which indicate interest in arrangements which would pair farmers with land.*

- Action: HSU graduate student is engaged through the WRTC to perform a study of suitable agricultural properties and willingness of landowners to participate in innovative programs which would put their land into farming production.

***Objective E1.2: Promote community support for farmers markets and other outlets for farm products***

*Strategy: The existing markets are supported.*

- Action: The kick-off to the farmers markets is held in conjunction with another community event to boost attendance and awareness of markets.

*Strategy: New outlets, such as grocery stores, are approached about carrying local produce.*

- Action: Citizens make inquiries at local stores requesting local produce be carried.

***Objective E1.3: Facilitate organizations, such as the Hayfork Growers Association, and promote scaling-up the food system.***

*Strategy: Seek funding support for organizations such as this which provide a forum for local agricultural issues.*

- Action: Create a coalition of local organizations to apply for partnership grants to support local agricultural sector and organizations.

- Action: As a coalition, write grant proposals to secure funding for local agricultural issues.

**E2*:* Support recruitment efforts in some areas of the county (Hayfork for instance) to support a more diverse and viable economy.**

***Objective E2.1: Attract new residents to participate in the stewardship economy.***

*Strategy: Create stewardships jobs which are living wage, and year-round.*

- Action: WRTC and RCD hire local people for field crews.

- Action: WRTC and RCD work to secure year-round work for their crews.

*Strategy: Be proactive in recruiting people for professional stewardship positions (such as USFS jobs) as a community to help place individuals who are committed to the community and the local landscape.*

- Action: County organizations communicate about open positions and request membership on hiring committees where feasible and appropriate.

- Action: County organizations aid in recruiting workers by sharing job openings with qualified candidates through networks such as the Fire-Learning Network.

***Objective E2.2: Retain residents (particularly youth).***

*Strategy: Create a mentorship program at area high schools which encourages students to consider careers which they can pursue in Trinity County.*

- Action: WRTC work with Mountain Valley Unified School District to launch mentorship program.
- Action: Extend the mentorship program throughout the county if other school districts and agencies show interest.

***Objective E2.3: Identify and mentor potential entrepreneurs.***

*Strategy: Through the Trinity Business Incubator search committee outreach to area business people regarding opportunities for businesses in Trinity County.*

- Action: WRTC and Trinity Incubator Committee outreach through Trinity Journal and regional economic development organizations to attract entrepreneurs to Trinity County.

**E3*: Generate initiatives for economic opportunity and high quality of life to make Trinity County an ideal place for families and working age people to live.***

***Objective E3.1: Create economic opportunities related to the stewardship economy and other industries.***

*Strategy: Work with existing businesses and organizations to train and hire local residents to stewardship jobs.*

- Action: WRTC and RCD hire local people for field crews.
- Action: WRTC work with Shasta College and other partners to develop and implement training programs for prescribed fire and other stewardship activities.

***Objective E3.2: Maintain ecosystem health and the rural nature of communities as these are main contributors to the high quality of life.***

*Strategy: Implement the other goals outlined in this plan in order to maintain ecosystem health.*

- Action: WRTC and partners seek funding to implement this action plan.
- Action: WRTC and partners implement actions outlined in this, and other relevant plans and guiding documents.

*Strategy: Develop community forums and opportunities to envision the future of our communities in order to strengthen relationships and articulate community values.*

- Action: WRTC work with county partners to host a community forum in Hayfork.
- Action: County partners host community forums in other areas of the county if there is interest.

***Objective E3.3: Provide for adequate housing***.

*Strategy: County has completed the required "Housing Study" describing the housing stock and condition in the county.*

- Action: County completes housing study for General Plan.

*Strategy: Pursue the development of affordable housing for rent and purchase.*

- Action: County partners work with planning department and committees to designate areas for development or redevelopment into affordable housing.

## Appendix B: Trinity County Climate Adaptation Plan Team Members

| Organization | Team Member Name(s) | Role on the Team/Synergy with other Planning Processes |
|---|---|---|
| The Watershed Research and Training Center | Michelle Medley-Daniel, Lynn Jungwirth, Nick Goulette, Joshua Smith and Marie Buell | Team leads, South Fork Trinity River Watershed co-Coordinator, GIS support |
| Trinity County Resource Conservation District | Pat Frost, Director | County General Plan Safety Element lead, Community Wildfire Protection Planning lead, review of climate plan components, participation in meeting |
| Trinity County Planning Department | Frank Lynch, Lead Planner and Rick Tippet, Planning Department Director | County General Plan revisions, review and comment on climate plan components, participation in meeting |
| Hayfork Community Plan Committee | Bob and Jan Mountjoy, Hayfork Community Plan Committee | Review climate plan and coordinate to align with Hayfork Community Plan, participation in meeting |
| Trinity County Planning Commission | Karl Fisher, Planning Commissioner | Review climate plan in context of general plan update, participation in meeting |
| United Sates Forest Service | Susan Erwin, Shasta-Trinity National Forest Partnership Coordinator | Coordinate climate planning effort with Forest Planners, review climate plan components, participation in meeting |
| Five Counties Salmonid Program | Sandra Perez, Program Manager | Coordination with watershed monitoring and restoration program, participation in meeting. |
| Natural Resource Conservation Service | Tiffany Hayes, District Conservationist | Provide private lands management perspective, cross-ownership coordination and funding opportunities for private implementation. Review of climate plan components and participation in meeting. |
| University of California Extension | Carol Fall | Share information from past studies including public health issues/recreation and oak woodland management. Provide input and feedback. |

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