



Socioeconomic Monitoring for the
Burney - Hat Creek Basins
Collaborative Forest Landscape Restoration
Project

May 2021

By

*Hilary Sanders
Jonathan Kusel, Ph.D.*

Table of Contents

Table of Contents	ii
Table of figures	iv
Executive Summary	v
Methods	2
<i>Study Area</i>	3
<i>Data Collection and Analysis</i>	5
Findings	7
<i>Socioeconomic Conditions</i>	7
Industry.....	8
Population	11
Employment and Poverty	16
Community Socioeconomic Conditions	23
Community Capacity.....	24
Overall Community Well-Being.....	26
<i>Forest Industry</i>	28
Infrastructure	28
Local Workforce and Types of Work	29
Fire.....	32
Public Perception	34
<i>Collaborative Outcomes</i>	34
Collaborative Dynamics.....	34
Project Outcomes	36
Discussion	38
Conclusions and Recommendations	40
Building Partner Capacity	41
Investing in Workforce Development and Local Contracting	41
Developing Outlets for Woody Biomass.....	41
Who is participating?	41
References	43
Appendices	45
<i>Appendix A: Community Capacity Worksheet</i>	45
<i>Appendix B: Community Capacity Narratives</i>	46
<i>Appendix C: Contractor Survey</i>	49
<i>Appendix D: Interview Guide</i>	52
<i>Appendix E: Additional Graphs</i>	55

Appendix F: 2010 Stakeholder Analysis Recommendations 58

Table of figures

Map 1: Map of the CFLR project boundary and socioeconomic study area	4
Map 2: The socioeconomic monitoring study area, with communities developed from census block groups	4
Map 3: Socioeconomic Scores for communities in the study area	24
Map 4: Capacity Scores for communities in the study area	25
Table 1: Overall well-being scores for the area	26
Graph 1: Transient Occupancy Tax revenue for Shasta County from 2002-2019 (Shasta County)	10
Graph 2: Jobs by industry sector in the study area in 2000, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	11
Graph 3: Total population of the study area in 2000, 2010, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	12
Graph 4: Total population of the communities within the study area in 2000, 2010, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	13
Graph 5: Number of students enrolled in the Fall River Joint Unified School District from 2007-2020 (CA Dept. of Education)	14
Graph 6: Population of study area residents by age class in 2000, 2010, 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	15
Graph 7: Unemployment for the study area in 2000, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	16
Graph 8: Percent of those over the age of 16 not in the labor force in 2000, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	17
Graph 9: Percentage of households with income at or below the federal poverty line in 2000, and 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	18
Graph 10: Inflation-adjusted median household income for study area communities in 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	19
Graph 11: Inflation adjusted median household value for owner-occupied homes in study area communities 2013-2018 (American Community Survey: https://data.census.gov/cedsci/)	20
Graph 12 a&b: Percentage of students eligible for the Free and Reduced-Price Meals Program in Fall River Joint Unified School District, Big Valley Joint Unified School District, and Mountain Union Elementary School District schools from 2004-2020 (CA Dept. of Education)	21
Graph 13: Type of work done by contractors	30
Graph 14: Barriers to hiring for local contractors	31
Graph 15: How wildfire has affected contractors	33

Executive Summary

The Burney-Hat Creek Community Forest and Watershed Group (the Collaborative) is a group of diverse stakeholders that come together with the Hat Creek Ranger District of the Lassen National Forest to advance landscape scale forest restoration for ecological, economic, and social benefit. The Collaborative was launched in 2009, and applied and was selected as a recipient of the U.S. Forest Service Collaborative Forest Landscape Restoration Project in 2011. The purpose of this report is to evaluate socioeconomic impacts of the Burney-Hat Creek Basins Collaborative Forest Landscape Restoration Project (the CFLR).

Sierra Institute researchers conducted interviews, workshops, a survey, and collected quantitative data over the course of 16 months to learn about broad socioeconomic conditions, the activities of the Collaborative, and how the establishment of the CFLR may have influenced socioeconomic conditions. The Collaborative Socioeconomic Subcommittee was engaged as was the group to thematically guide inquiry and ensure that local knowledge was incorporated into this work.

As discussed in this report, CFLR funds are linked to work on U.S. Forest Service land, yet considerable private and non-U.S. Forest Service work was leveraged by the collaborative and the CFLR. Over time, the CFLR has been successful increasing the acreage of landscape restoration work accomplished through partnerships between private and public entities in the Collaborative. These relationships took years to build, but momentum has slowly grown and it appears that even more landscape and related work will result from the CFLR in the coming years, even after CFLR funding ends. Success has involved an influx of grant funding as well as increased work for local contractors. However, broader economic impacts are difficult to isolate, in part because CFLR-related forest management accounts for only a small portion of the forest management in the region, and in part because the effects it does have are mitigated by regional and national trends, such as the 2008-9 economic recession and more recently by COVID-19 impacts.

Building the capacity of partner organizations and investing in local workforce development are two key areas in which the CFLR has benefited the local economy and communities and should continue to focus on. Those, in addition to supporting the ongoing development of one to three 3-5 MW biomass to energy facilities will help facilitate an increased pace and scale of forest restoration work that will provide sustainable forest restoration jobs and related socioeconomic benefits within the community.

Introduction

In 2009, the Burney-Hat Creek Community Forest and Watershed Group (BHCCFWG, or “the Collaborative”) was established at the recommendation and with the support of the Shasta County Resource Advisory Committee. In early years efforts were focused on developing shared goals related to forest and watershed restoration, recreation, wood utilization, fire resilience, and community well-being. In 2011 the Collaborative applied to the U.S. Forest Service Collaborative Forest Landscape Restoration Program (CFLRP) and the Burney-Hat Creek Basins Project was funded as a CFLR project, with \$12,535,834 in U.S. Forest Service match funding over ten years. This report is to fulfill CFLR monitoring obligations and evaluate the socioeconomic impacts of the Burney-Hat Creek Basins CFLR.

In the natural resources field, collaborative groups involve stakeholders working to advance healthy ecosystems and vibrant communities. It can be difficult to assess how well collaborative groups achieve this dual vision because many are guided by policies and institutions that focus on ecological outcomes. The CFLRP is unique in that it emphasizes both ecosystem and community outcomes through legislation that requires economic and social sustainability alongside ecological goals. As a result, the CFLRP outlines an imperative for collaboratives to assess influence on both restoration and community outcomes at a landscape scale.

Congress established the CFLRP in *Title IV of the Omnibus Public Land Management Act of 2009* to “encourage the collaborative, science- based ecosystem restoration of priority forest landscapes” (Consolidated Appropriations Act of 2012). In this all-lands approach to forest restoration, the U.S. Forest Service is required to collaborate with stakeholders to restore forest ecosystems across ownership boundaries. Additionally, the enabling legislation requires CFLR projects to:

...(7) benefit local economies by providing local employment or training opportunities through contracts, grants, or agreements for restoration planning, design, implementation or monitoring with (a) local private, non-profit, or cooperative entities; (b) Youth Conservation Corps crews or related partnerships with State, local, and non-profit youth groups; (c) existing or proposed small or micro-businesses, clusters, or incubators; or (d) other entities that will hire or train local people to complete such contracts, grants, or agreements.... (Section 4003, page 4).

All CFLR projects are required to monitor, evaluate, and respond to the positive or negative ecological, social, and economic effects of their actions (Section 4003, page 8). Despite this requirement, there are challenges to both meeting and assessing socioeconomic objectives. CFLRP funds from the U.S. Forest Service, for example, can be used only for resource management project implementation, so the options for projects to provide community benefits are inherently constrained by accompanying budgetary restrictions, even if members of a CFLR would like to see that money spent on such projects. Given these constraints, it is also difficult to assess how CFLRs causally impact socioeconomic well-being, as widespread

monitoring of these outcomes is limited (Swezy, Reeves-Jolley, and Kusel 2016). A lack of clearly defined socioeconomic objectives further challenges CFLRs' ability to implement projects that might address these objectives (Urgenson and et al. 2017).

The BHCCFWG is unique in that a socioeconomic assessment was conducted prior to applying to become a CFLR. In 2010, the Shasta County Resource Advisory Committee funded a stakeholder analysis and socioeconomic assessment of the area, conducted by Sierra Institute for Community and Environment (Sierra Institute). This Stakeholder Assessment set forth recommended ecological and socioeconomic goals for the nascent Collaborative, and created a baseline for a variety of socioeconomic indicators.

In 2019, the Lassen National Forest initiated a cost-share agreement with Sierra Institute to conduct an in-depth socioeconomic assessment of the CFLR to date. The goal of this effort is to assess the status and trends of social and economic conditions within and surrounding the CFLR area, using the baseline established in the 2010 stakeholder assessment as an initial reference point, and to determine the influence of the CFLR on these conditions. This assessment was to be designed to assess socioeconomic conditions and generate recommendations for work by the CFLR, and for work by the Collaborative in the long-term.

It is important to note that differentiating between the impacts of Collaborative work and the impacts of the CFLRP is impossible: the CFLRP provided a funding stream that comprises roughly half of the Collaborative's funding over most of the group's tenure. The Collaborative has continued to pursue funding for projects beyond the immediate scope of the CFLRP, most of which have been identified as leveraged funds in this and other CFLR reports. This report distinguishes CFLR and Collaborative outcomes only when important and appropriate to do so.

The report begins with a discussion of the methodology employed for identifying, prioritizing, and obtaining data. This description enables future monitoring efforts to duplicate procedures in order to help make measurement consistent, to the extent practicable. Second, findings from quantitative and qualitative assessment methods are used to describe general socioeconomic conditions in the study area. Next, major themes related to the forest industry and CFLR outcomes are discussed. Finally, the report closes with conclusions about socioeconomic impacts of the CFLR thus far, and recommendations for continued success over the long-term.

Methods

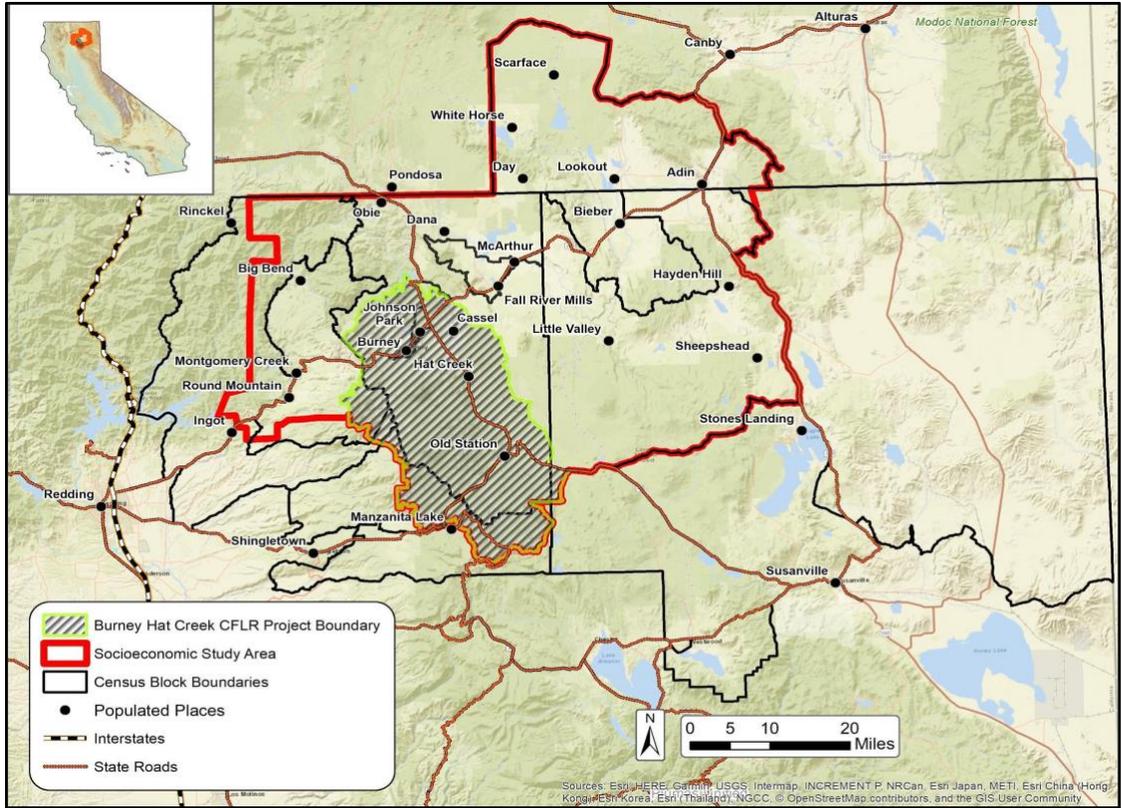
The term "socioeconomic" refers to the social and economic state of local communities and residents and is characterized by a set of indicators that can be analyzed and described using one or more measures. The Sierra Institute identified these measures for the CFLR area from experience with similar reports for other CFLRs and in discussion with the Socioeconomic Monitoring Subcommittee to capture unique dimensions of the CFLR's work. The Sierra Institute used a mixed methods approach, drawing on available quantitative data, such as US Census Bureau data and Free and Reduced Price Meal program participation rates, as well as

qualitative data from in-depth, semi-structured key informant interviews, community workshops—including one that focused on capacity assessment for area communities, and a survey to develop a more detailed and contextualized view of socioeconomic conditions and trends.

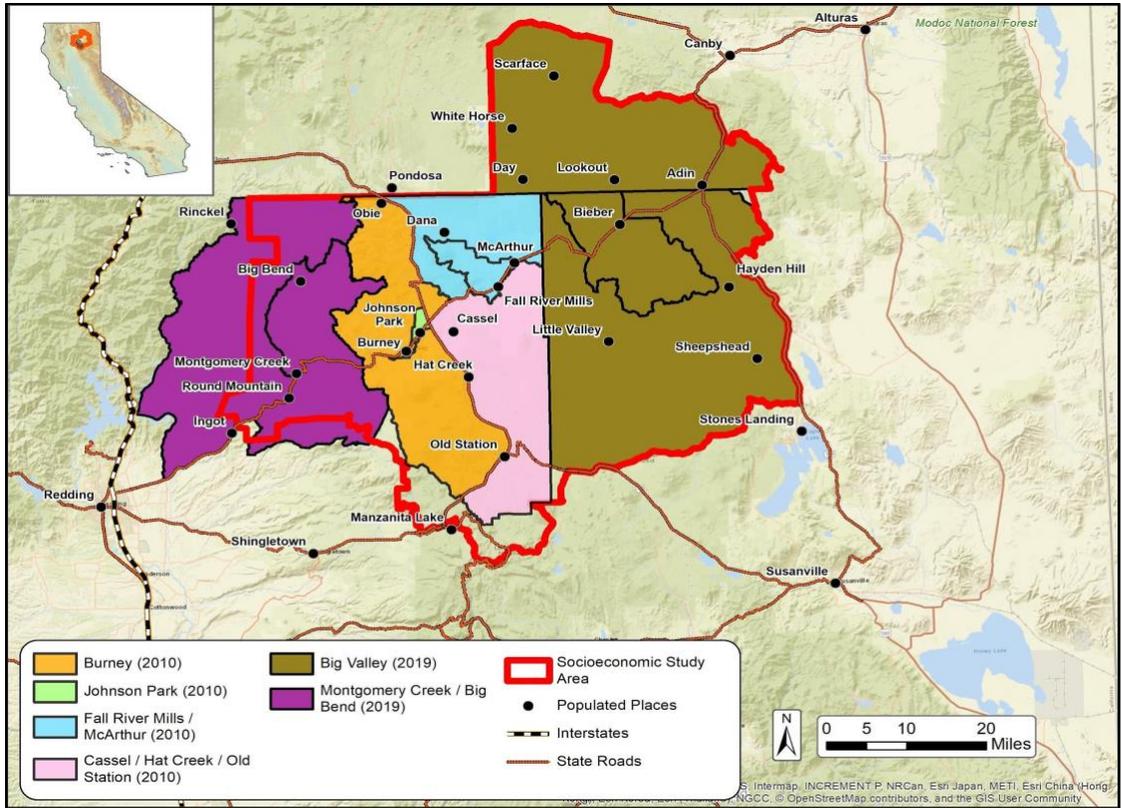
Study Area

The CFLR Program requires projects to benefit the local area. However, the practice of defining the geographic boundary of “local” has not been standardized among CFLRs. Many adopt a county or multi-county area, while others focus on specific communities (Swezy, Reeves-Jolley, and Kusel 2016). It is important to align the socioeconomic monitoring effort with an area relevant to what CFLR members consider when they think of “local” benefits.

The CFLR area is a 364,250-acre landscape centered on the Burney Creek and Hat Creek watersheds, and includes a variety of land owners, including U. S. Forest Service, private timber, national and state parks, private ranching land, and tribal trust and allotment. At 58%, the proportion of U.S. Forest Service land is one of the lowest among CFLRs in the U.S., highlighting the importance the group places on cross-boundary collaboration. It encompasses nearby communities in Lassen and Shasta Counties, including Burney, Johnson Park, Cassel, Hat Creek, and Old Station. At the direction of the Socioeconomic Subcommittee, Sierra Institute expanded the study area for this assessment beyond the boundaries of the CFLR in order to more fully capture the geographic reach of socioeconomic impacts. Contracts for project implementation are often awarded to contractors who live in the general area but outside the CFLR boundary, in towns such as Fall River Mills and Bieber, which keeps dollars in the area. Contractors coming from outside the area buy gasoline, equipment, food, and stay in hotels within and adjacent to communities during projects. Tourists that benefit from recreation improvements spend their money in a variety of area businesses. In order to capture these wider benefits, the boundaries of the study area were set to match the boundary for what constitutes “local” in relation to the CFLR, as determined by a previous Sierra Institute study devoted to that question and explored with the Collaborative in 2016 (Sierra Institute, 2016). The study area (Map 1) is about 300% larger than the CFLR area and extends east and north based on residence and business patterns, school district boundaries, U.S. Forest Service contracting data, and other socioeconomic factors (Reeves-Jolley, Kusel, and Hann, 2016).



Map 1: Map of the CFLR project boundary and socioeconomic study area



Map 2: The socioeconomic monitoring study area, with communities developed from census block groups

In order to capture the nuances of unique trends at a fine-grained geographic level, communities were defined using spatially based U.S. Census block groups and using a peer-reviewed process previously used in the Sierra Nevada Ecosystem Project and the Sierra Institute's Disadvantaged Communities and Tribal Involvement Program. Block groups are the smallest unit for which data are collected for the US Census and American Community Survey. In the mapping exercise, members of the Collaborative aggregated block groups based on geographical and social factors such as shared services that shape social and economic life. Block groups were sometimes left alone to represent a community or communities, and sometimes multiple block groups were merged together to better represent a unified community area (Map 2). The map was reviewed by additional local experts in a subsequent community workshop. The four central communities (Burney, Johnson Park, Fall River Mills/McArthur, and Cassel/Hat Creek/Old Station) were the communities used in the 2010 Stakeholder Assessment. Participants in the most recent community workshop noted that Johnson Park largely functions as part of Burney, but accepted the value in analyzing it separately and in maintaining continuity from the previous assessment.

Data Collection and Analysis

Quantitative and qualitative data were collected from a variety of sources in order to triangulate findings to understand local nuance and identify impacts attributable to the Collaborative. Sierra Institute employed a participatory approach with the Burney-Hat Creek Community Forest and Watershed Group Socioeconomic Monitoring Subcommittee throughout the process to ensure monitoring incorporated local knowledge and captured unique factors influencing socioeconomic well-being in the study area. The Socioeconomic Monitoring Subcommittee was engaged in identifying and refining objectives, questions, and indicators most relevant to the Collaborative and local area; identifying key informants for interviews and workshops; and guiding monitoring to ensure comprehensive, relevant results.

Quantitative data were collected from sources such as the US Census and other national, state, and local agencies, presented either for the study area as a whole or for individual communities as appropriate. Data were collected at the block group level when possible. However, some data were not collected for small geographic areas and were available only as estimates or at the county level, thus limiting accuracy and relevance for the analysis. Indicators were selected with input from the Socioeconomic Monitoring Subcommittee and are largely the same as those used in the 2010 Stakeholder Assessment to be able to directly compare to the previous assessment or conditions at the launch of the CFLR.

Researchers additionally conducted two workshops with the Collaborative group to draw out outcomes and compare them to the socioeconomic conditions and recommended goals outlined in the 2010 Stakeholder Assessment. In the first workshop, members of the Collaborative reviewed recommendations from the 2010 assessment, identified those goals that had been achieved, and discussed specific successes and challenges. In the second workshop, participants broke out into small groups to discuss broader Collaborative

accomplishments, focusing on leveraged funding, policies and practices, and specific project outcomes that affected the community.

To better understand the characteristics of individual communities, researchers conducted a community capacity workshop in July of 2020. As Kusel (2001) states, “Assessing community capacity makes it easier to understand the potential for increased opportunities for productive and rewarding involvement in a community...high community capacity itself suggests higher levels of well-being for residents...[and] that expanding opportunities to meet community needs (and local well-being) is not only possible but likely.”

Capacity is made up of five types of capital:

Financial Capital: Availability of dollars for local use and projects and to meet pressing local needs. These may be public dollars or private dollars, but if private they are tightly linked to community purpose and not just to self-interested purposes.

Human Capital: Individuals with knowledge/ability to address conditions and stressors of concern; it is also the experience and capabilities of local residents and their willingness to use these locally.

Social Capital: The ability and willingness of local residents to work together towards community ends and purposes.

Cultural Capital: The prevalence and strength of shared local bonds and ways of living, and the uniqueness of and identification with this.

Physical Capital: The “hard infrastructure” of a community, such as roads, sewers, schools, etc., including the quality of this infrastructure and its ability to meet local need (DACTIP MAC Narratives).

Using a combination of Subcommittee recommendations and snowball sampling, researchers convened eleven community experts in a Zoom meeting due to safety concerns of meeting in person related to COVID-19. Participants ranked their knowledge of each community defined in the previous mapping exercise. Following definition of the five capitals, participants were asked to complete a worksheet (Appendix A) about the communities of which they had the highest knowledge. Group discussion of the surveys resulted in a relativized overall capacity score and a brief narrative describing key characteristics of each community (Appendix B).

In order to gain a more targeted understanding of the health of the forest industry in the area and to assess how contractors contribute to the local economy and communities, researchers reviewed contracting data obtained from the U.S. Forest Service and conducted a survey (Appendix C) of contractors either located within the study area, or who had received CFLR-funded contracts. Surveys were conducted over the phone, and researchers attempted to contact each contractor up to three times. Twenty-three out of forty-six contractors that met the criteria responded to the survey, for a response rate of 50%.

Finally, interviews were conducted with key informants recommended by the Subcommittee, and included members of the Collaborative and residents associated with the forestry industry or with particular knowledge of social and economic well-being. In order to obtain a relevant and diverse list of interviewees, researchers provided a list of categories to guide recommendations, which were: local contractors and forest-related business owners, U.S. Forest Service personnel, local business owners, governmental and non-profit community health and social service providers, and others. It is important to note that the Pit River Tribe was not participating in the Collaborative at the time of interviews and researchers were unable to schedule interviews with recommended Tribal members. The lack of tribal involvement represents a serious limitation of this report because the Tribe is a prominent part of the communities in the study area, and because the CFLR landscape encompasses considerable historic homeland of the Pit River Tribe.

Nineteen semi-structured interviews were conducted in person or over the phone using an interview guide (Appendix D) and running between 60 and 90 minutes each. Interviews were recorded, then transcribed using Otter, an AI software. Researchers coded the interviews using a multiple-pass method. Researchers independently coded a test interview to develop a codebook, then coded three additional interviews and compared in pairs to refine the codebook and ensure consistency. All interviews were then coded and analyzed in QDA Miner Lite. The themes that emerged are used to structure the findings of this report.

Findings

Findings are drawn from multiple data sources. Different types of data, including primary data collected via interviews and surveys conducted by Sierra Institute and secondary data available from the U.S. Forest Service, U.S. Census and County data repositories, create a robust pool of information to draw from and allows researchers to triangulate data to verify conditions and trends. Findings presented below are organized into three themes: overall socioeconomic conditions to situate the CFLR within the context of local community dynamics; the forest-related economy, as it is through this sector that the CFLR can affect the most direct change; and insight into the function and key outcomes of the CFLR itself.

Socioeconomic Conditions

The study area is located in the Southern Cascade Range east of Redding, the nearest city, and includes several small (pop < 5,000) towns as well as scattered outlying populations. The Burney-Hat Creek area was historically and to some extent still is resource dependent, with communities built around the timber and ranching industries. Tourism is also important. The region experienced detrimental effects of the decline of the timber industry, followed by the Great Recession. Capturing economic and demographic changes, especially over the last 10 years, is important for placing the socioeconomic effects of the CFLR in context. When possible, data are presented from the year 2000 to present in order to compare to baselines and trends

established in the previous socioeconomic monitoring conducted in 2010. (Note that American Community Survey data are most often available for the years 2000, 2010, and 2013-2018. Data from other sources varies).

Industry

The major industries in the study area are largely tied to the land, and include logging, agriculture, and tourism. The distribution of these industries among the communities in the area is uneven. In particular, the decline of the logging industry in Burney and Big Valley, and the vibrancy of the tourism industry in Fall River Mills and Hat Creek perpetuate wealth disparities.

Timber Industry

Directly relevant to the CFLR, interviewees estimated the timber industry continues to be the largest single sector of the local economy, and it used to be larger. As discussed later in this report, the educational, health and social services industry is technically the largest employment sector in the region. However, the agricultural, forestry, fishing, and hunting sector is the third largest, having previously been the second until recently in 2018 (Graph 2). In the 1990s, the spotted owl controversy and restrictions contributed to the closure of several small mills and contracting businesses in the area. This decline had long-lasting impacts on community well-being as people lost their jobs and left the area, hitting Burney/Johnson Park and Big Valley particularly hard. Nevertheless, logging remains a common profession in the area, and the two large mills, operated by Sierra Pacific Industries and Shasta Green, both located in Burney—each with an adjacent biomass-fired cogeneration plant—are an important source of year-round jobs. Other major employers in the forest industry include W.M. Beaty and Associates and independent logging companies.

It is through the timber industry that the CFLR has the biggest economic impact by its push to hire local contractors to implement projects and ensure logs and biomass go to local mills. This is discussed in more detail later in this report. Local contractors spend money on fuel, equipment repairs, and other goods and services in the community, and typically hire local people who then spend money locally as well. Some interviewees pointed out that bringing outside contractors into the area to do forest work also benefits the economy because workers stay in hotels, and buy food, fuel, and other services and supplies from local businesses during jobs.

Agriculture and ranching are smaller but important and steady parts of the economy and culture, especially in Hat Creek, Fall River Mills/McArthur, and Big Valley. In particular, agriculture, in addition to forestry, fishing, and hunting, makes up the largest employment sector in Big Valley, and the second largest in McArthur (US Census Bureau, 2019). Interviewees noted that generational ties to family ranches create tight knit communities that value hard work and being community-oriented, in a way that is lacking in Burney/Johnson park. A number of large, prosperous ranches help keep wealth local.

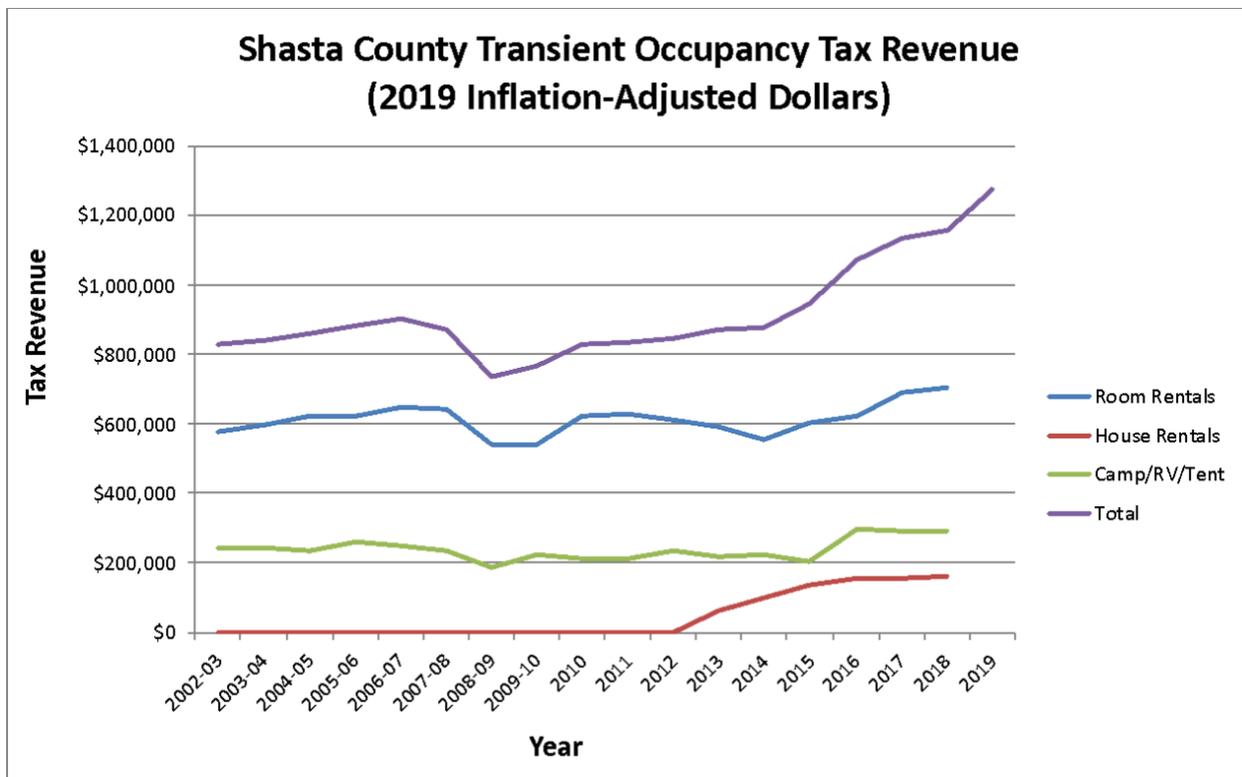
Tourism

Interviewees were split on whether the tourism industry is growing, declining, or holding steady. However, they agreed that it is a large part of the economy. Lassen Volcanic National Park and McArthur-Burney Falls Memorial State Park are important draws, as is trout fishing on Hat Creek. In Fall River Mills, the fisheries bring in people, often from wealthy areas, who vacation and buy second homes and have an interest in investing in the well-being of the ecosystem and community. In Burney, Pacific Crest Trail through-hikers stop in town to eat at restaurants, sleep in motels, and stock up on groceries. Old Station functions as a gateway to Lassen Volcanic National Park and has several lodging facilities. There are several RV parks in Hat Creek as well. Hunting brings in people in the fall, including in Big Valley, which does not see much other tourism. In the winter there is some skiing, snowshoeing, and snowmobiling, but interviewees noted that there is less snow every year, with winter recreation affected. Many local restaurants and lodging businesses rely on the tourism season to build reserves to hold them over the spring and fall shoulder seasons and, for many, the winter. Tourism and forest work, like logging, take place simultaneously, in contrast to the off season, when, one interviewee noted, the mills and employment from the mills are all that keep local businesses and communities afloat.

Although tourism is important, campgrounds, RV parks, lodges, and other infrastructure are ageing. According to one interviewee, there is considerable opportunity for improvement:

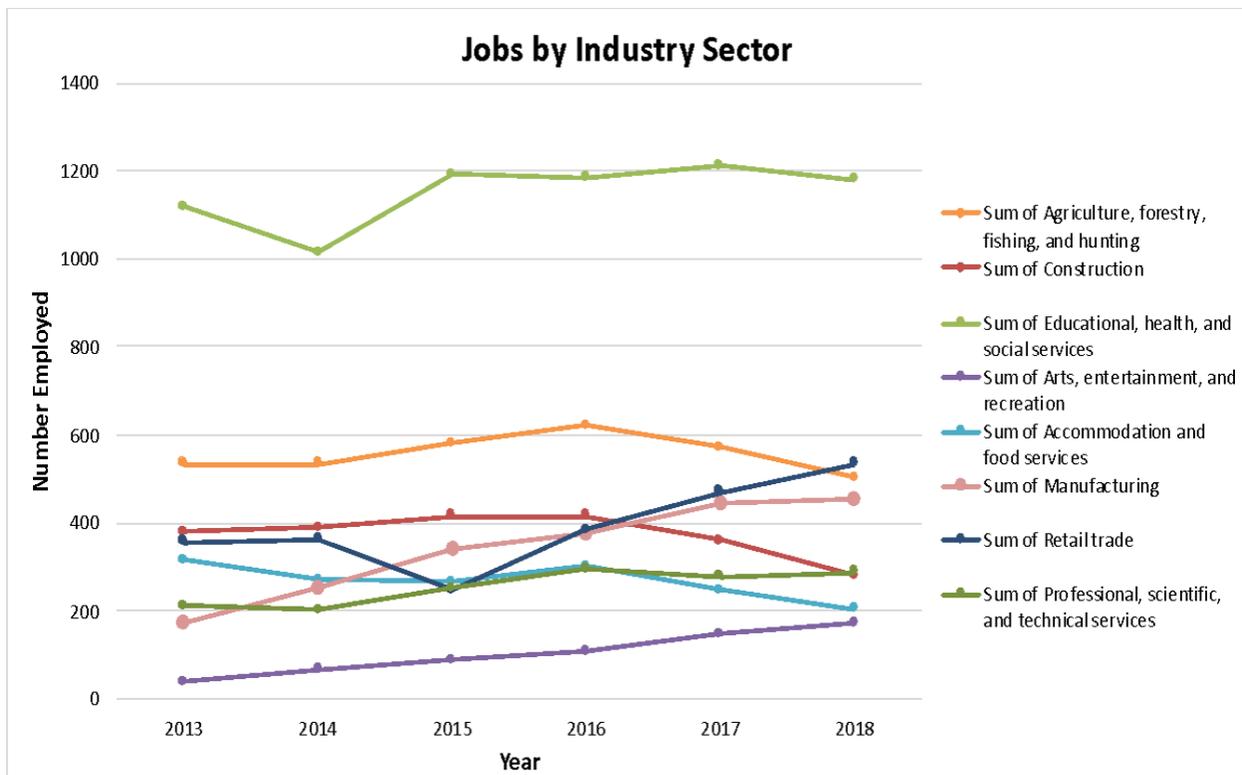
Tourism is very important but people don't realize the opportunity for increased tourism, I think. Our campgrounds are crumbling, they're not, you know, ADA accessible for people with disabilities. There's a lot of things like crumbling infrastructure, kind of outdated stuff, and then lack of new and diverse recreation opportunities is keeping our tourism down. But it's still the main driver in the summer.

Improving existing facilities could improve tourism overall and benefit the economy. In the last few years, the Collaborative has focused on recreation directly, with some funding approved for tourist-related improvements. There is general agreement that forest health can benefit tourism by improving views from vista points and the general look of the forest, called "viewscapes" by a number of interviewees, and reducing high severity wildfire and smoke that keeps tourists away.



Graph 1: Transient Occupancy Tax revenue for Shasta County from 2002-2019 (Shasta County)

More directly, tourism benefits the local economy through the Transient Occupancy tax (Graph 1). The Shasta County Transient Occupancy Tax (TOT) is levied upon all lodgings where occupants reside for less than 30 days. Shasta County began collecting TOT on house rentals in 2012. This measure can serve as a proxy for the amount of tourism in Shasta County, in which most of the study area lies. Shasta County experienced a relatively flat TOT revenue from 2002-2012, with a notable drop in tax revenue around the time of the 2008 Great Recession. A general upward trend since 2014 suggests that tourism in the county is increasing. Though 2020 TOT data were unavailable as of this writing, in general camping, recreational vehicle use and outdoor recreation surged during the COVID-19 pandemic. Lassen Volcanic National Park reported a surge unlike any previously during 2020, but it is not known if this recreation increase offset the loss of hotel and house rentals resulting from statewide closures due to the pandemic.



Graph 2: Jobs by industry sector in the study area in 2000, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci>)

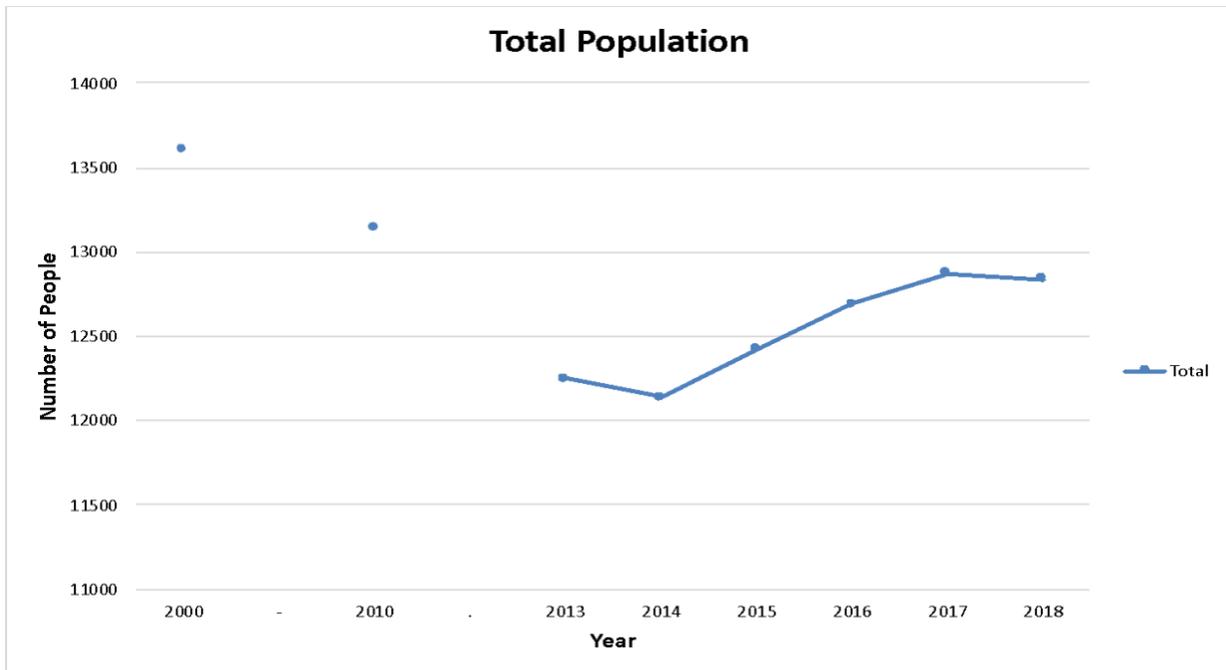
The timber industry and tourism are most relevant to the CFLR, but they are not the only economic engines. Educational, health, and social services make up the largest sector of employed persons. Agriculture, forestry, fishing and hunting was the second-largest sector until it declined in 2017 and 2018, and was replaced by retail trade. Over the time frame of the CFLR, the number of jobs in retail trade, manufacturing, and arts, entertainment, and recreation have roughly doubled, while jobs in construction and accommodation and food services have decreased slightly (Graph 2). These data support interviewee reports that there has been a shift in some communities away from logging and towards the recreation and service industries.

The major employers, however, are similar to those identified in the 2010 Stakeholder Assessment. According to local experts, Mayers Memorial Hospital and health centers in Montgomery Creek/Big Bend and Big Valley remain important employers. The government sector (schools, public agencies, the prison) along with Pacific Gas and Electric (PG&E), and Sierra Pacific Industries (SPI) provide a large number of relatively well-paying jobs with benefits, anchoring many households in the area. In addition, interviewees identified the Pit River Tribe as an important employer and asset to the economy and community.

Population

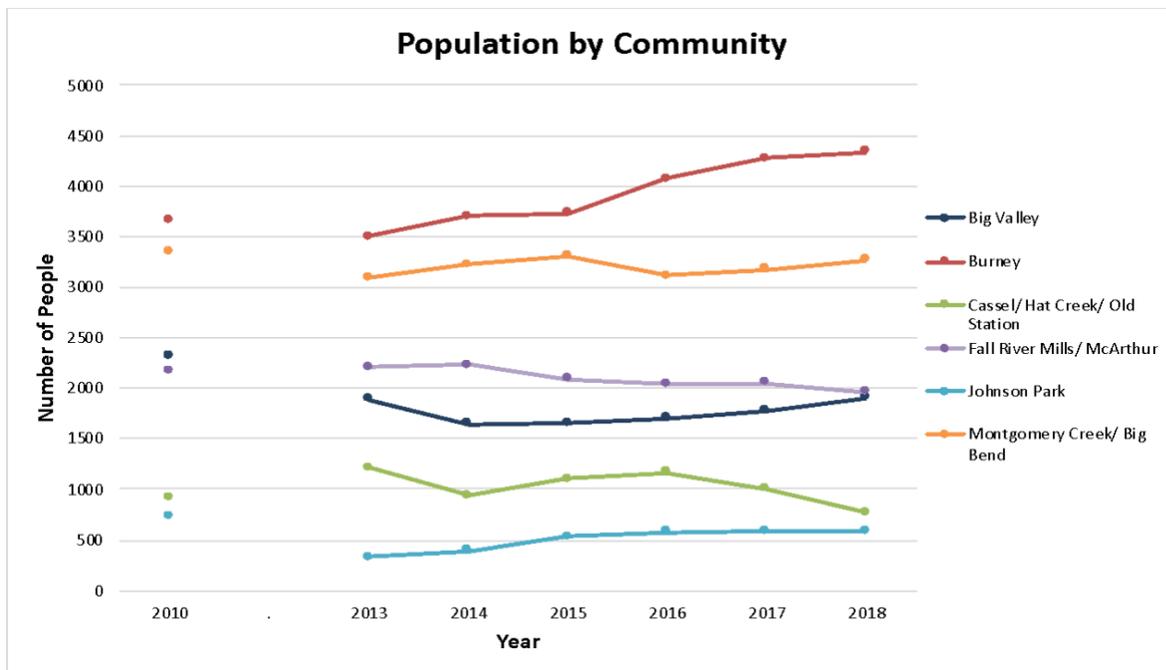
Like many rural areas in the United States, the study area has experienced a decline in population since 2000. Viewing the area as a whole (Graph 3), population decreased from 2000 to 2010, and decreased further from 2010 to 2013—part of an extended Great Recession

impact, with a decline of about 1500 residents, equal to roughly 11%. In 2014 the population recovered somewhat, with the 2018 Census data showing a net loss of about 700 residents since 2000.



Graph 3: Total population of the study area in 2000, 2010, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

Fall River Mills/McArthur and Cassel/Hat Creek/Old Station are two communities that have lost the largest percentage of its population since 2013, as shown in Graph 4. In sharp contrast, between 2013 and 2018, Burney’s population increased by 25%.

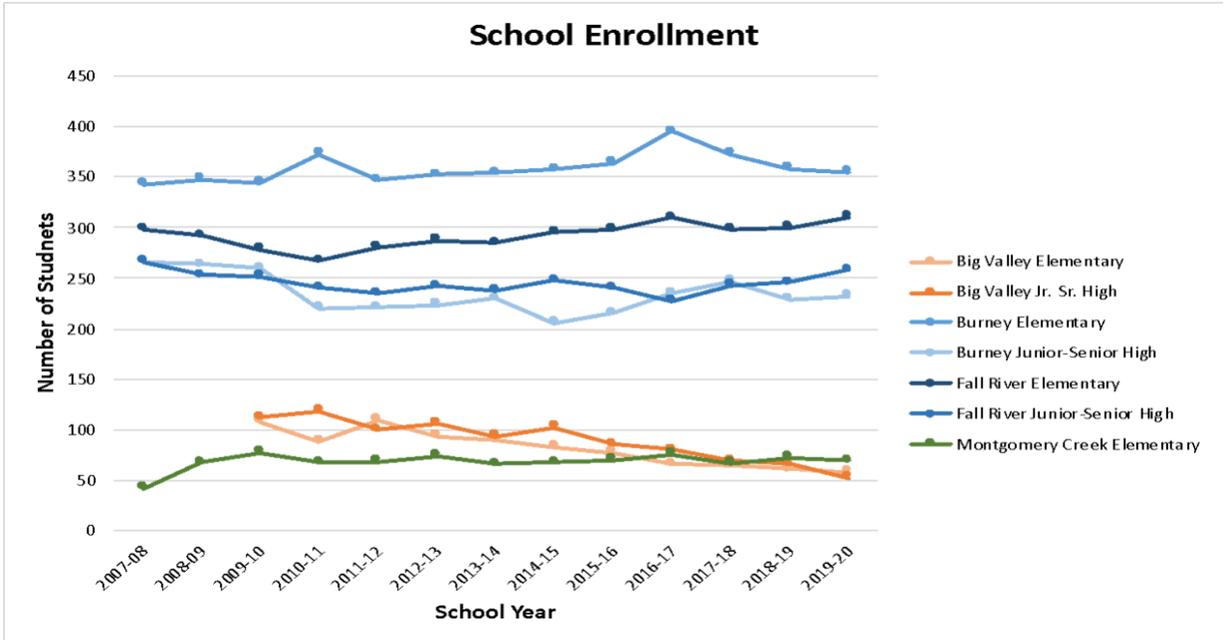


Graph 4: Total population of the communities within the study area in 2000, 2010, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

According to interviewees, mill closures are related to a decrease in population as people lost their jobs and left the area, which is also linked to a decline in the number of businesses in Burney/Johnson Park and Big Valley especially. Note that the small populations of these communities will magnify trends displayed by percentage in following graphs.

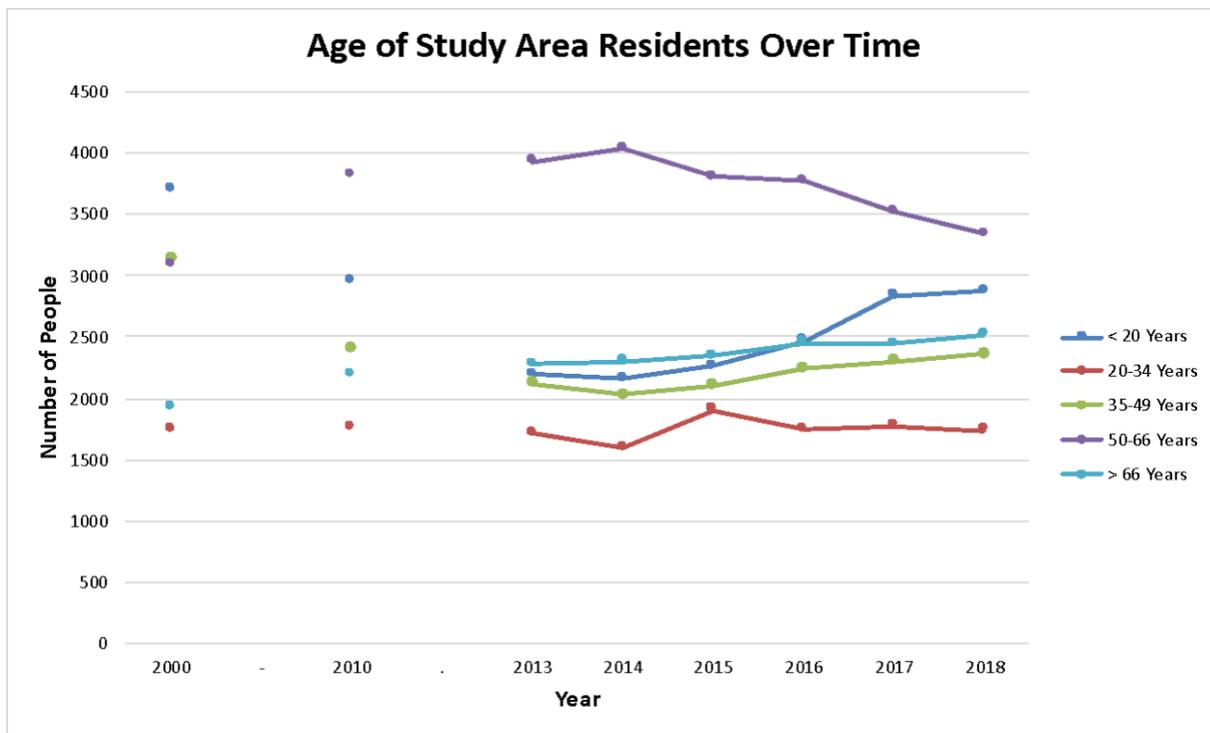
Graph 5 shows student enrollment for the Big Valley Joint Unified School District, Mountain Union Elementary School District, and Fall River Joint Unified School District, which includes Burney Elementary, Burney Jr.-Sr. High School, Fall River Elementary, and Fall River Jr.-Sr. High School. The 2010 Stakeholder Analysis reported that enrollment in the Fall River Joint Unified School District declined steadily from about 1,800 total students in 1992 to about 1,200 in 2007, a 33% decline. Since then, enrollment has remained fairly steady in both the Fall River Joint Unified School District and the Mountain Union Elementary School District, which includes only Montgomery Creek Elementary School (<https://www.cde.ca.gov/ds/sd/sd/filesenr.asp>).

In Big Valley, however, enrollment is following a downward trend, matching data and community members' perceptions that the number of young families in the area is declining and that class size is at an "all-time low."



Graph 5: Number of students enrolled in the Fall River Joint Unified School District from 2007-2020 (CA Dept. of Education)

Note that data are available from 2009-10 for Big Valley Elementary and Big Valley Jr.-Sr. High School because the schools opened that year, following the closure of the former primary (K-3), intermediate (4-8), and high (9-12) schools.



Graph 6: Population of study area residents by age class in 2000, 2010, 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

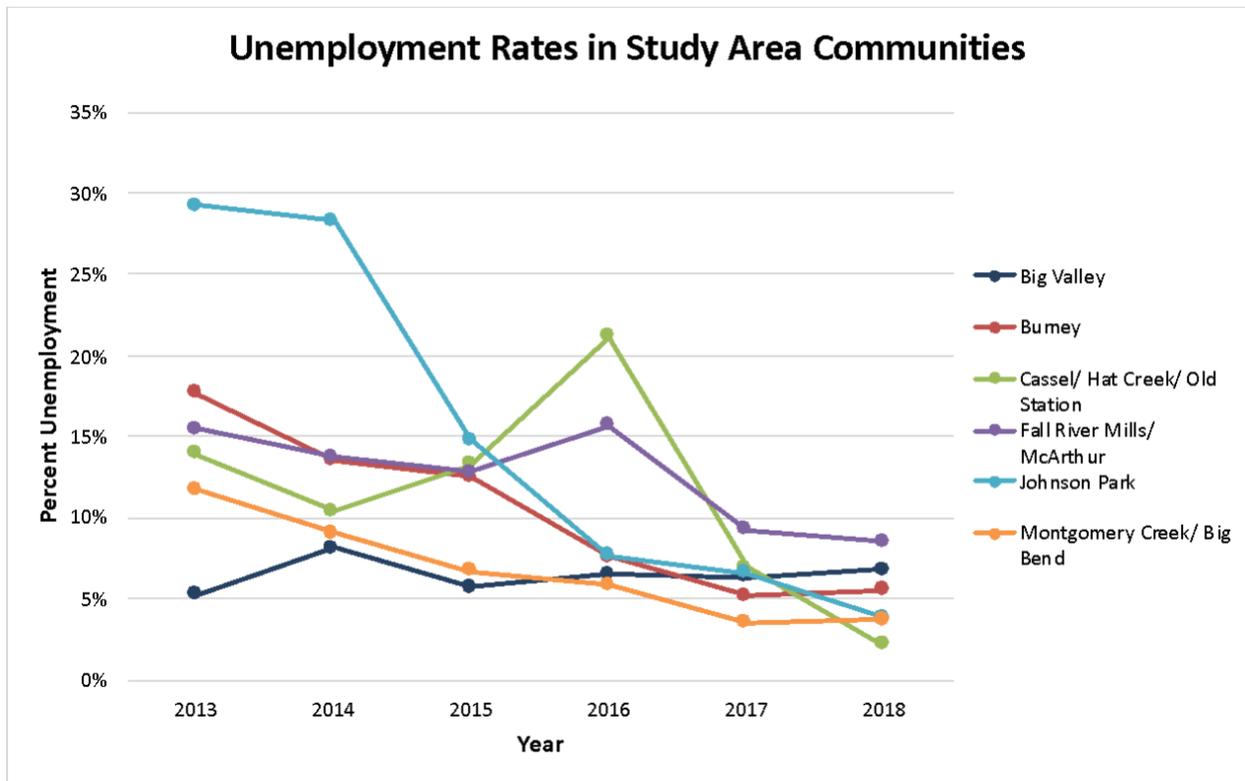
As shown in Graph 6, interestingly study area communities do not follow the general pattern of aging rural communities in rural America. While the greater than 66 year-old group has continued to increase, it has grown more slowly since 2013 and the 50-66 age group, increasing between 2000 and 2014, has declined rather dramatically in recent years. The 35-49 year-old age group, which declined significantly in the first decade of the 21st Century, has grown since 2014. With the exception of 2015, the number of 20-34 year-olds has stayed relatively stable since 2000; while considerably below the numbers of 2000, those under 20 have increased every year since 2014. The year 2014 corresponds with the Bald and Eiler Fires but more work is needed to determine if and how these events are related to demographic changes underway. Additional graphs showing the population of age classes for each study area community are available in Appendix E.

The more common rural pattern has been that young people leave for college or work opportunities and do not return, leaving a disproportionately older population, as older people move into the area to retire. Interviewees mentioned that retirees tend to be very engaged and run some important community events and fundraisers. However, as they age they become less able to do these things, and some move out of the area to be closer to family and health care. The challenge for many rural communities is when there is that lack of a robust younger generation behind them to take on that community work. As these data suggest, interviewees noted that in recent years some young people have returned to the area to raise their kids near family in the rural culture, bringing their education and professional expertise and building the younger population and increasing human capital in the area. This is supported by data showing a marked increase in 2014 in educational, health care, and social service jobs along with other

major sectors in the area which appear to have predominantly been filled by residents aged 35-49. While inconclusive, forest jobs advanced by CFLR activities may have contributed to this recent influx. These residents brought along their children, resulting in an increase of under 20 year-olds and a slight increase of enrollment in the local schools, which had previously experienced a steep decline since 1993. This is indeed encouraging.

Employment and Poverty

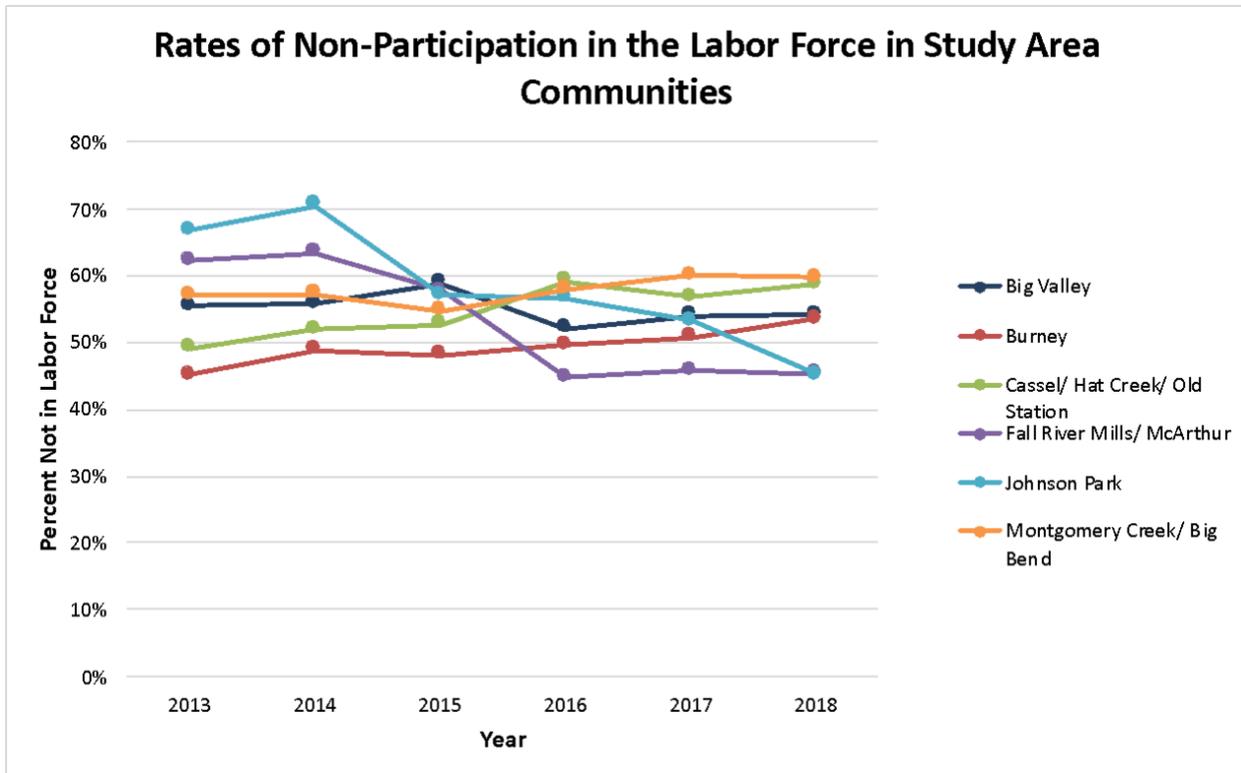
According to interviews with community members, the lack of year-round, well paid and benefited jobs is one of the biggest barriers to well-being in the community. Unemployment and non-participation in the labor force are consistently high as are poverty rates, and interviews suggest the paucity of job opportunities contributes to drug use and low community engagement in many areas.



Graph 7: Unemployment for the study area in 2000, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

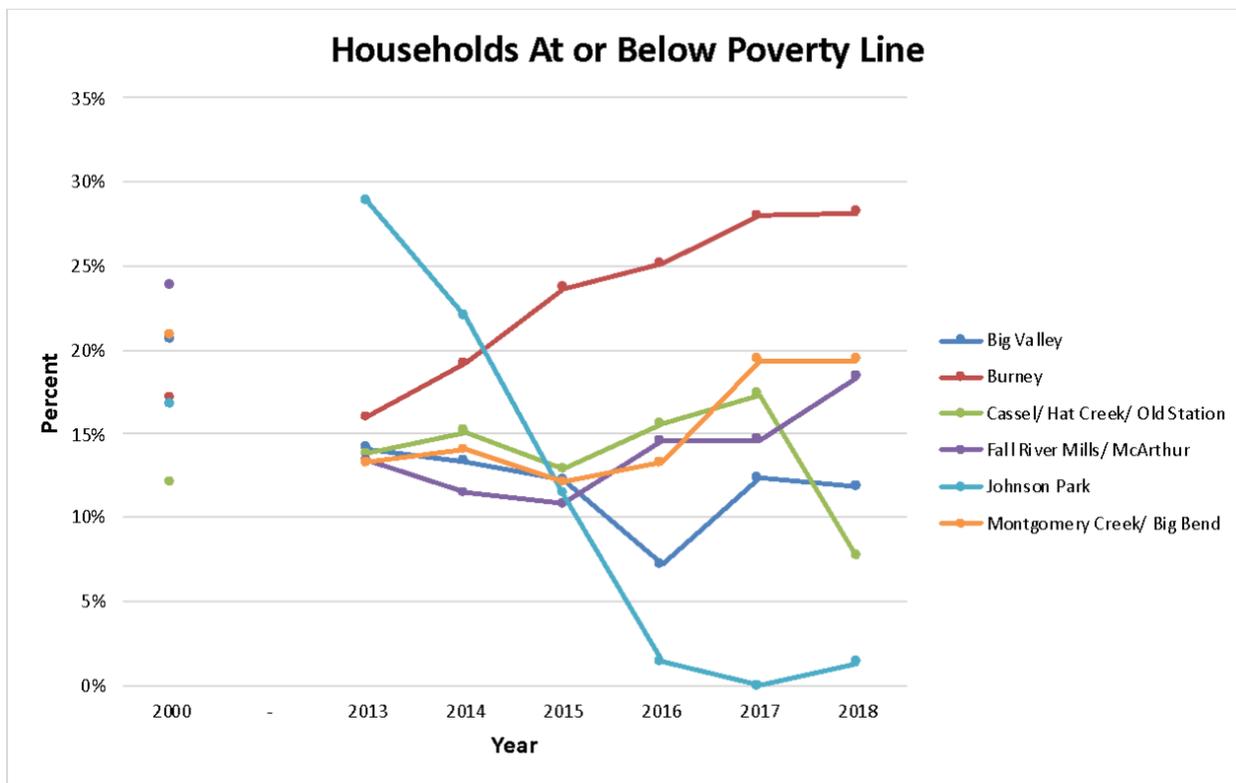
Graph 7 shows a remarkable decline in unemployment levels since 2013. On average, in 2018 unemployment rate is lower by half from 2000 across all communities (Graph 7). The 2018 unemployment rate in the study area is consistently a little higher than the state average. In 2017 the unemployment rate in the study area was about 6%, just over the state average of 4.8%. Because data between 2000 to 2013 is not shown, fluctuations during that time, including during the height of the Great Recession, are not visible. Importantly, since 2013 there has been a decline in unemployment rates and considerably less disparity among communities. It is

likely that the improvement in recent years is related to broader upward economic trends. Working within this context, the efforts of the CFLR to create local employment opportunities may well be contributing to these trends and may well have further impacts in the coming years. This report was mostly concluded before the 2020 COVID-19 pandemic, a year in which unemployment across all areas increased, sometimes doubling. We expect these rates to dramatically decline as the pandemic resolves, with the work of the group and forest restoration contributing to more local opportunities.



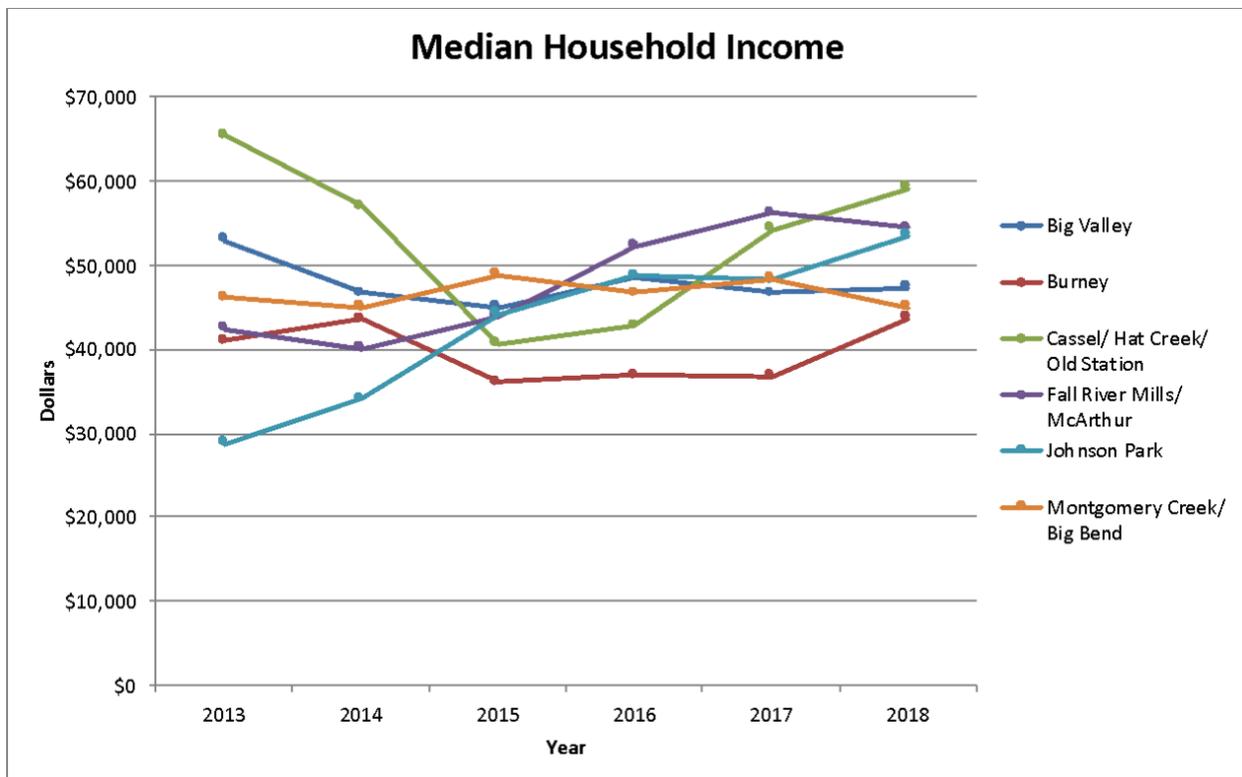
Graph 8: Percent of those over the age of 16 not in the labor force in 2000, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

On average, the proportion of the population not in the labor force has remained fairly steady. It has increased slightly in Burney and Cassel/Hat Creek/Old Station, and decreased in Fall River Mills/McArthur and Johnson Park. Non-participation in the labor force is the number of residents over the age of 16 who are not employed or seeking employment. The number does not include children but does include retirees. The high percentage of people not in the labor force – on average over 50% in recent years compared to the statewide average of 36% in 2017 – points to an older population and mirrors what a number of interviewees said about younger people not “wanting,” or being able to work.



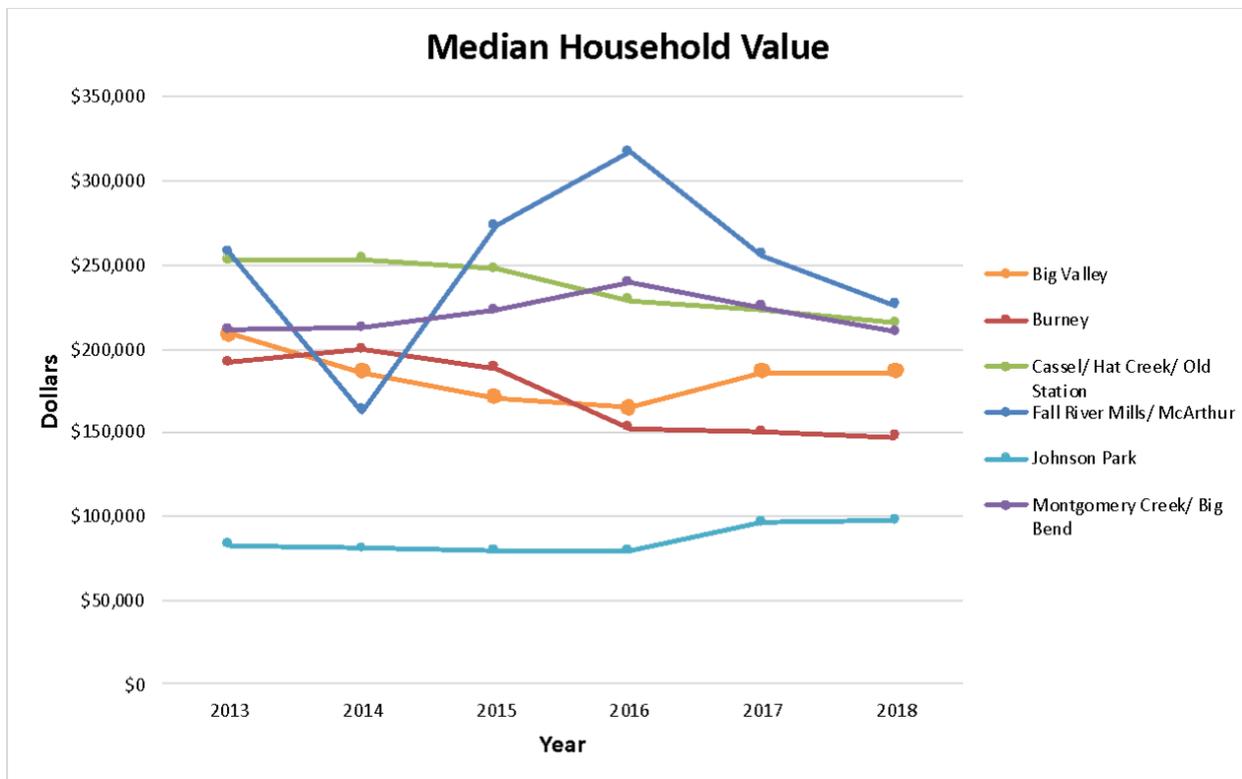
Graph 9: Percentage of households with income at or below the federal poverty line in 2000, and 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

Graph 9 depicts the percentage of households in the study area with income at or below the federally defined poverty level. There has been little net change in the total percentage of households living on income at or below the poverty level since 2000, but there have been stark changes in individual communities during this period. The rate of households in poverty has decreased over the past six years in Cassel/Hat Creek/Old Station, Big Valley, and Johnson Park, but it has increased in Montgomery Creek/Big Bend, Fall River Mills/McArthur, and Burney although it is lower in Big Valley than it was in 2000.



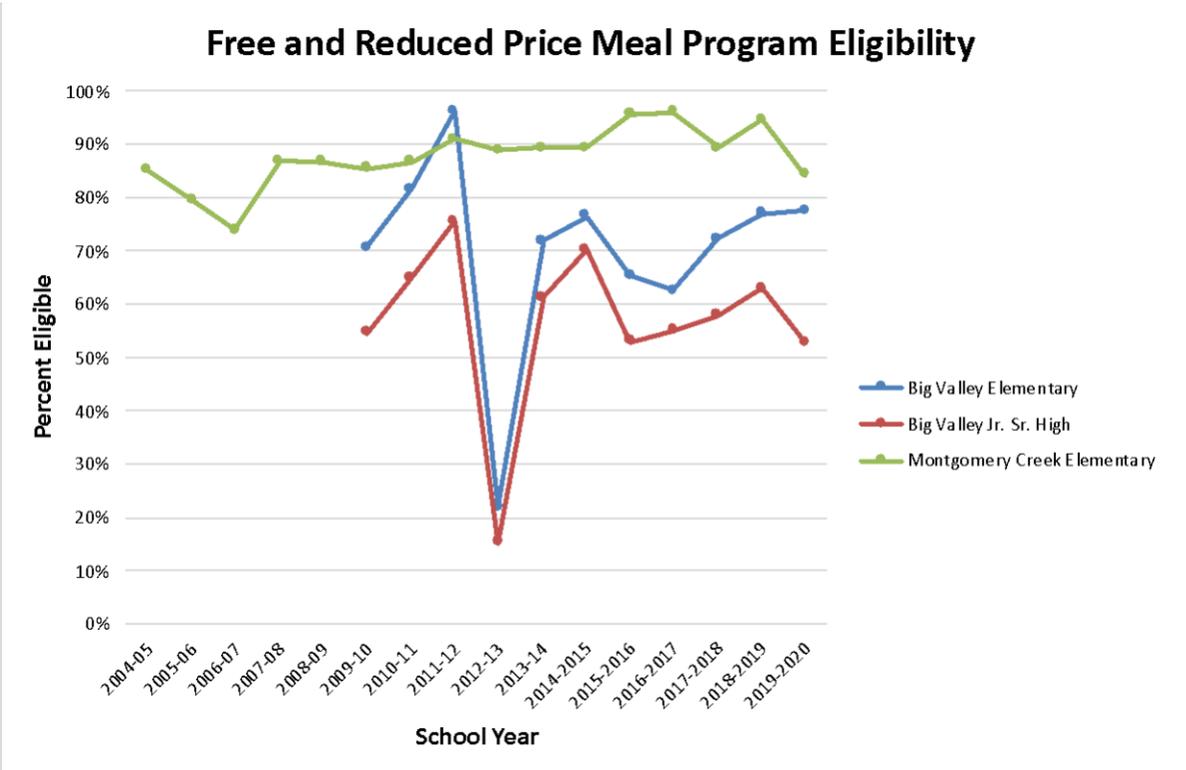
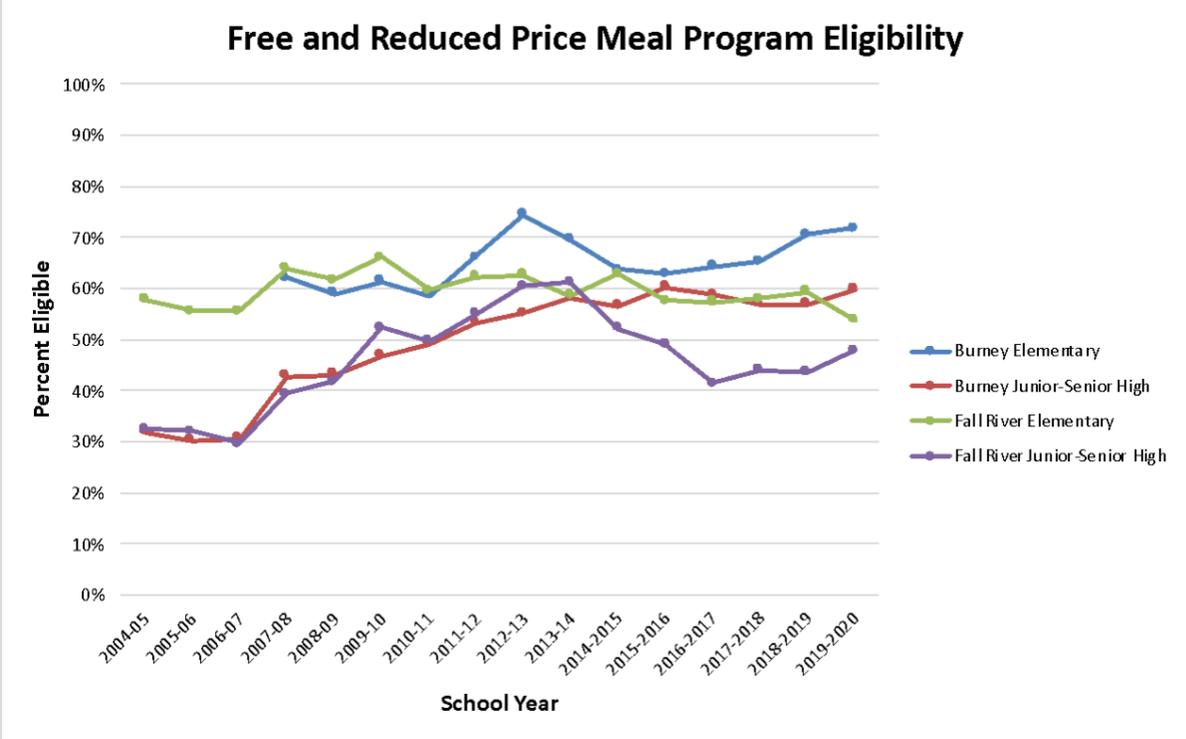
Graph 10: Inflation-adjusted median household income for study area communities in 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

Graph 10 shows inflation-adjusted median household income study area communities from 2013 to 2018. Though not shown, compared to 2000, median household income is about the same for most communities, but there has been some fluctuation since then with most communities experiencing a drop and subsequent increase. Similar to unemployment rates, there was a wide disparity in median household income in 2013, ranging from just under \$30,000 to about \$65,000. By 2018, the spread narrowed to just under \$45,000 to \$60,000. The reported numbers are inflation adjusted.



Graph 11: Inflation adjusted median household value for owner-occupied homes in study area communities 2013-2018 (American Community Survey: <https://data.census.gov/cedsci/>)

Inflation-adjusted housing values, shown in Graph 11, in the study area have generally declined slightly or remained the same from 2013 to 2018. The study area as a whole hovered around a median household value of \$200,000, with Fall River Mills/McArthur generally having the highest values and Johnson Park consistently having values at least 30% lower than any other community. These data support interview and capacity workshop outcomes regarding wealth disparities among study area communities. Note that in 2017 the sample size in Big Valley was too small to obtain estimates and the data shown in the graph is based on only a portion of the households in the community. It is worth noting again that these data precede COVID-19 impacts that in a number of rural areas have led to increasing numbers of urban and semi-urban residents to relocate to rural areas and push housing prices up.



Graph 12 a&b: Percentage of students eligible for the Free and Reduced-Price Meals Program in Fall River Joint Unified School District, Big Valley Joint Unified School District, and Mountain Union Elementary School District schools from 2004-2020 (CA Dept. of Education)

Graph 12a&b: Percentage of students eligible for the Free and Reduced-Price Meals Program in Fall River Joint Unified School District, Big Valley Joint Unified School District, and Mountain Union Elementary School District schools from 2004-2020 (CA Dept. of Education)

Free and Reduced Price Meal (FRPM) rates can serve as a proxy for poverty rates, as eligibility is determined primarily by parents' income and employment status. Enrollment rates at local schools, shown in Graphs 12a and 12b, have been fairly steady over the same time frame so FRPM rates reflect primarily changes in need within the community rather than demographic shifts. Consistent rates at Fall River Elementary School reflect the relative stability of that community while a 15% increase in participation at Burney Elementary School aligns with the effects of the Great Recession. Rates at Montgomery Creek Elementary were already high and increased further, only beginning to decline again in 2016. Elementary school rates tend to be a more accurate representation of poverty because of the social stigma from participation in the free and reduced-priced meal program that arises in junior high and senior high school. The doubling of participation rates in area high schools from 2006 to 2013 therefore reflects the seriousness of the impact of the Great Recession on young families. Continued high rates in Burney and Big Valley indicate the lasting effects in those areas, while the subsequent decline of participation at Fall River Jr.-Sr. High School shows relatively greater recovery following the Recession. Note that Big Valley Elementary and Big Valley Jr.-Sr. High School opened in 2009-10 so data are unavailable for prior years. Small numbers of students at those schools can lead to dramatic percentage shifts in participation rates.

There was some agreement among interviewees that the Great Recession of 2008-2009 had a delayed effect but that was not as severe as in other places, and that the overall economic landscape has not significantly shifted in the last ten years. A set of U.S. Forest Service forest management projects were being implemented around the time of the recession, which, paired with some business generated by the contractors in Burney working on an industrial wind turbine installation, maintained a relatively stable level of economic activity in the years following the recession. The windmill project contributed \$500,000 initially with an additional \$25,000 per year for 20 years to the Burney schools.

The effects of the recession were eventually felt and a few local businesses closed, further limiting opportunities to spend money locally. Interviewees stated that SPI milling slowed, but logging continued and kept business moving to some extent. One interviewee recalled that the Sheriff's substation in Burney was closed in 2010 or 2011, meaning that police had to drive from Redding to answer calls at night or on weekends, contributing to problems with petty crime. Interviewees also had the impression that homelessness has significantly increased in recent years, likely as a result of the recession and local wildfires. In the last year, the increase in price and decrease in availability of fire insurance has become a real concern that could affect housing prices and occupancy in the future.

Community Socioeconomic Conditions

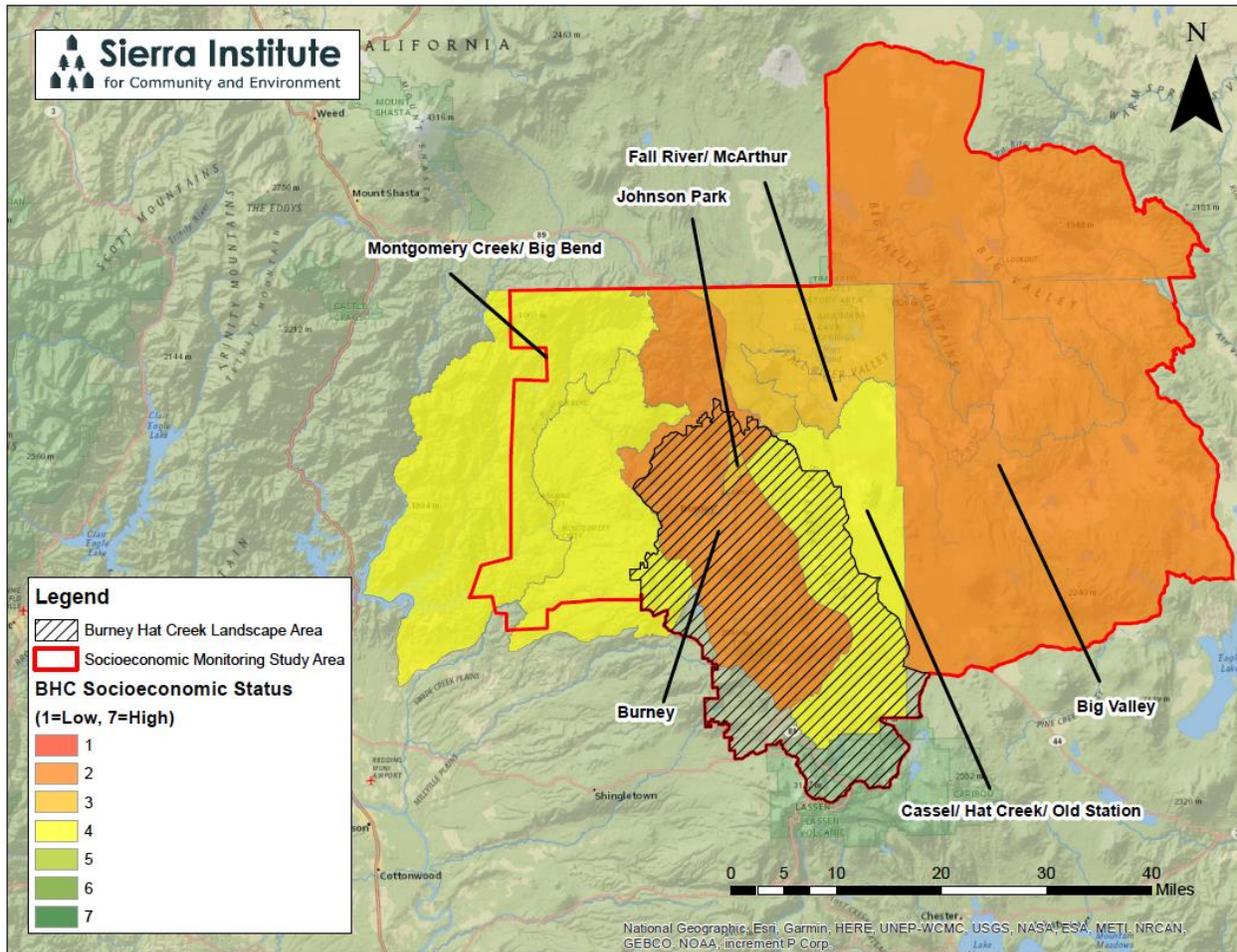
The socioeconomic assessment used data collected at the level of Census block groups for each of the identified communities. Data were drawn from the American Community Survey of the U.S. Census Bureau. Five categories comprised of six measures were selected and analyzed to produce an overall community socioeconomic score. Categories and indicators include:

- Housing Tenure – Proportion of housing in community that is occupied by the owner vs. rented. Housing tenure is suggestive of the relative wealth and permanence of residents in an area and offers an insight into the degree of local control over housing resources.
- Poverty Status – a) Proportion of residents with income below the annual income poverty threshold, calculated by family size, as well as a measure of the b) relative intensity of poverty of those individuals (a household with an income at 25 percent of the poverty level experiences a more significant impoverishment or higher intensity of poverty compared to those with incomes just under the poverty level).
- Education Level – Measure of residents' (25 years and older) overall education level, with higher education producing a higher score.
- Employment – Proportion of residents in the labor workforce who are currently employed.
- Public Assistance – Proportion of children eligible for free and reduced-price school lunches.

Scores for each of the measures were relativized with communities across the Sierra region to more objectively measure socioeconomic condition and show how communities compare with rural forested communities across the greater Sierra Nevada region. Relative scores for each measure are then combined to create an overall composite score. Composite scores for all communities were then divided into seven categories, with 1 being the lowest and 7 being the highest. (For all communities, the distribution of communities across the categories follows approximately a normal distribution, with the majority of communities falling in the middle of the spectrum.)

For the Burney-Hat Creek Collaborative area, community socioeconomic scores ranged from 2 to 4, and are shown in Map 3 below. Cassel/Hat Creek/Old Station and Montgomery Creek/Big Bend have the highest socioeconomic scores in the Burney Hat Creek landscape area. Compared to entire pool of forest communities, however, these rank at the medium level. Johnson Park and Fall River are medium low, while Burney and Big Valley, with a score of 2, are rated low on the socioeconomic scale.

Socioeconomic Scores for Area Communities

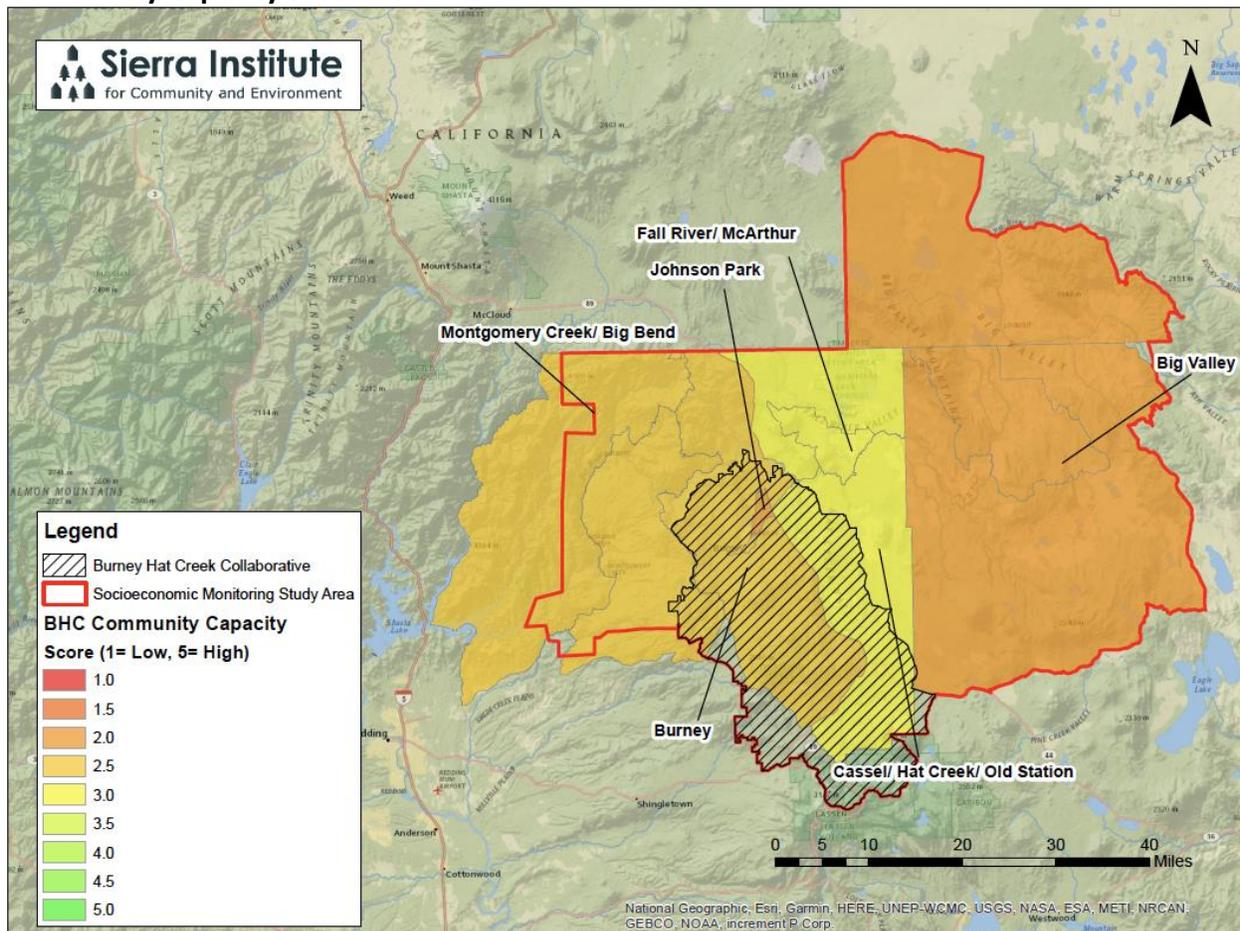


Map 3: Socioeconomic Scores for communities in the study area

Community Capacity

Along with demographic and economic information and interviews with community members, Sierra Institute collected information through a community workshop to identify the capacity of communities in the study. Capacity refers to the capability of a community to respond to internal and external stressors, determined by five “capital” dimensions: physical, financial, cultural, human, and social. Local experts rated these five capitals individually and collectively to determine overall community capacity. As shown in Map 4, the communities of Cassel/Hat Creek/Old Station and Fall River/McArthur were the highest capacity communities in the area with a score of 3. On a 1 to 5 point scale, 3 is a “medium” capacity rating, underscoring the generally lower capacity scores for communities in the area. Many lack the array of resources and resident involvement in diverse activities that characterize high capacity communities. Burney and Montgomery Creek/Big Bend, with a capacity score of 2.5—a medium low rating,

Community Capacity Scores for Area Communities



were the second highest capacity communities in the study area. Big Valley and Johnson Park were rated a 2, though for very different reasons. Unlike the compact Johnson Park, the Big Valley community is a large geographic area with several towns scattered widely and little coordination or a coming together of a “community.” While geographically compact, residents of Johnson Park don’t come together much as a community, as many activities are absorbed by nearby Burney, and there are limited local town services.

Through interviews and the capacity assessment workshop, community experts described unique characteristics of each community. Like many rural places, there are a handful of people who tend to get things done, but it varies from one community to another. In Burney/Johnson Park and Hat Creek/Cassel/Old Station there is limited citizen engagement in PTA and the volunteer fire department. In Big Valley and Big Bend, people tend to come together to help their neighbors but resources are limited. Overall, sports rivalries and a few big events such as Burney Basin Days and the Inter-Mountain Fair bring the communities together in support of the schools, volunteer fire department or other groups. Fall River Mills/McArthur has more resources and a stronger culture that contributes to community pride and engagement than

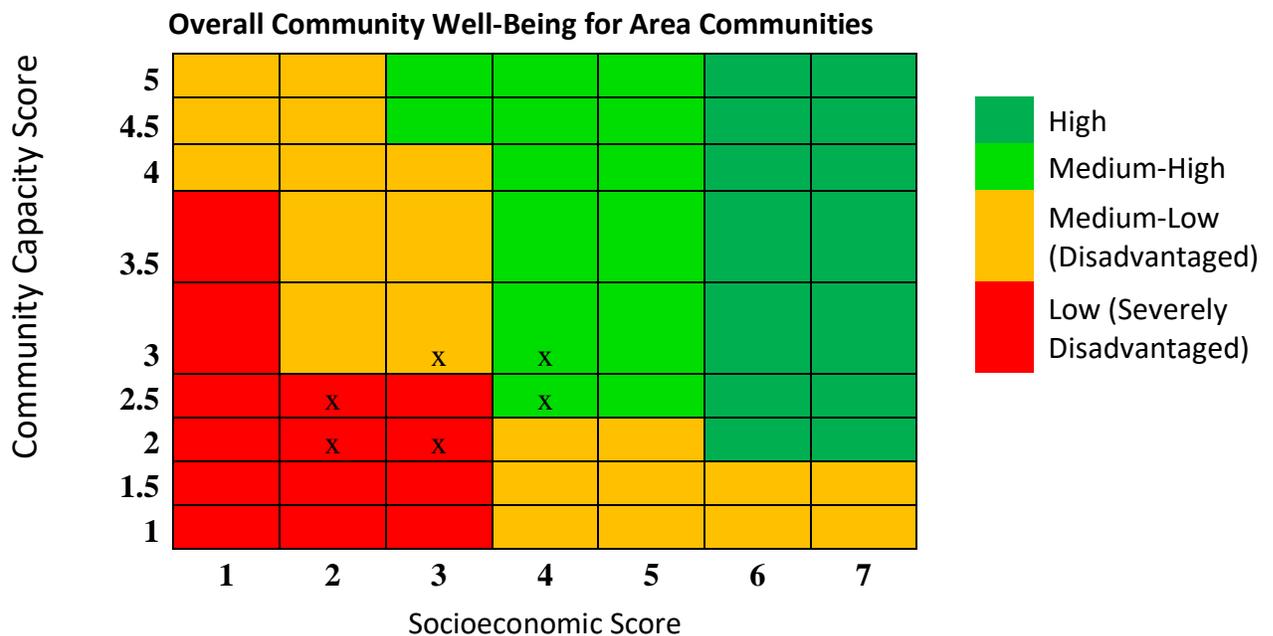
the other communities. There are also some wealthy celebrity second-home owners and vacationers that helped the hospital to be built and, along with high-capacity retirees and long-standing ranching families, cultivate active community organizations and maintain infrastructure and amenities. For full narratives regarding community capacity scores for each individual community, refer to Appendix B.

Overall Community Well-Being

When evaluated jointly both socioeconomic status score and capacity show a community’s overall well-being. Two communities, Montgomery Creek/Big Bend and Cassel/Hat Creek/Old Station, are medium high capacity primarily due to the strength of their socioeconomic scores. Fall River Mills/McArthur is a medium-low capacity community, and the remaining three—Burney, Johnson Park, and Big Valley—are all low capacity communities. This approach to community well-being assessment was pioneered and peer reviewed favorably in the Sierra Nevada Ecosystem Project (1996) and is important in highlighting that these latter three communities rate as severely disadvantaged and Fall River Mills/McArthur as disadvantaged.

This conceptualization is reflective of local conditions and distinctly different from the statewide CalEnviroScreen tool that misses the mark in its evaluation of rural forested communities.

Table 1: Overall well-being scores for the area



In sum, local residents of the region appreciate the area for its natural beauty and recreation opportunities. Many people have family ties to logging and agriculture, while others moved to the area drawn by the natural environment. They tend to connect to the land through their work and in their leisure time through hunting, fishing, and other types of outdoor recreation.

Interviewees speculated that it is hard for people who do not engage in those activities to feel connected and to stay in the area, and the limited variety of types of jobs may discourage young people from moving to or staying in the area.

The entire area, however, has been affected by economic downturn endemic to many rural areas. Buildings in Fall River Mills are ageing and like in Burney, many businesses have shut down. Interviewees from multiple communities mentioned that people go to Redding for their shopping and leisure. Businesses in the area furnish necessities but periodic shopping trips to Redding where there are more options are needed for many residents. To some extent, “that’s the way life’s always been here,” according to one interviewee. However, businesses throughout the study area have shut down, as some other amenities have become more limited. There is a library in Burney and Fall River Mills, but a performance theatre in Hat Creek has closed.

With fewer local options for necessities and entertainment, people are increasingly leaving the area to meet these needs. The issue of connectivity in terms of access to things like shipping and internet was brought up as part of rural life that many people appreciate, but also a barrier to businesses starting up and being successful. This downturn and continued challenges facing communities in the area underscore the importance of the CFLR and the work of the collaborative. The group increases area capacity generally and works to re-build communities locally.

Box A. COVID-19 and Socioeconomic Impacts

The coronavirus pandemic began in the United States in March of 2020. Shelter in place orders and the associated nationwide economic downturn undoubtedly have affected and will continue to affect the study area. Anecdotally, two movie theatres have temporarily closed and there is a possibility they will be permanently closed. Campgrounds closed, potentially reducing tourism, yet many tourists were undeterred and flocked outdoors in record numbers. Yet many businesses were not able to fully benefit from the tourism season because of closures. Interviewees reported that forest work was considered essential and was able to continue, but the Hat Creek Ranger Station was closed at times. The Collaborative has continued to meet virtually. Data are not yet available that would indicate the economic effects on businesses and individuals and we will not know the full and long-term impacts for some time to come beyond the writing of this report.

Forest Industry

The Burney-Hat Creek area is somewhat unique in California in that the timber industry, although it has declined, is still an essential part of the local economy and some critical infrastructure does exist, enabling forest work to continue economically. Interviews and a survey of contractors provide some insight into how the industry has changed in recent decades and the infrastructure, workforce capacity, and fire-related challenges that exist.

Infrastructure

The Burney-Hat Creek area was historically dependent upon the timber industry and was home to several mills in Burney and Big Valley. In the 1990's, the spotted owl controversy and accompanying decline of forest work caused a wave of mill closures. The economic downturn in 2008 left two mills in the area: SPI and Shasta Green, both in Burney. These two mills take approximately 90% of forest materials from the area, by one estimate, and directly provide over 200 jobs. Logs and biomass from the area are also often taken to SPI mills in Anderson, Shasta Lake, and Oroville, other mills in Alturas or Weaverville, or to Honey Lake Power or the Wheelabrator Shasta facility in Anderson.

In 2019, the SPI Burney mill was retrofitted to update equipment, increase automation, and increase capacity by 20-30%. The mill employs over 150 people. Most logs are harvested from SPI land, and about 15% come from U.S. Forest Service land. One interviewee speculated that the amount of material coming from U.S. Forest Service land was limited by available contracts rather than mill capacity. The adjacent co-generation facility is supplied almost entirely by mill waste. Also in 2019, SPI acquired land held by Fruit Growers Supply Company. Already the largest private landowner in the area, this move further consolidated SPI's ability to supply its mill and employ people directly as well as contract logging businesses.

The other mill in Burney, Shasta Green, is co-located with Burney Forest Power just down the road from the SPI mill and is on SPI land previously owned by Fruit Growers. The company does not own any land but owns Franklin Logging Company, which includes three logging sides, a chipping side, and a trucking operation, and altogether provides 115 jobs for local people who live, shop, and put money back into the community. Nearly 100% of material harvested by Franklin Logging goes to Shasta Green. Burney Forest Power is a separate entity and the two depend on one another: mill waste provides about 30% of supply for the power plant, and waste steam heats the mill's kilns. Chips from Franklin Logging provide additional supply to Burney Forest Power.

Several interviewees expressed concern about the repercussions if Shasta Green were to shut down. Although Shasta Green is much smaller than SPI, it provides competition and keeps log prices up, which benefits local contractors. There is some fear that the SPI acquisition of Fruit

Growers will take away a regular source of logs from Shasta Green, further limiting the available forest land from which to source and encouraging local contractors to work for SPI more frequently. Shasta Green has not updated equipment or increased the number of employees for over ten years and capacity for growth is constrained by the cost of electricity to run the mill during peak hours in order to add extra shifts, and by space to expand kilns. In addition, Shasta Green would be at risk if Burney Forest Power were to shut down, which it nearly did around 2016 until then Assemblyman Brian Dahle (now state senator) helped to negotiate a BioRAM program renewal. Interviewees speculated that in addition to direct jobs lost, the mill shutting down would hurt local contractors and the viability of future U.S. Forest Service and other landowner projects. As one interviewee said, “If we lose Shasta Green we’re going to lose all the value out of our timber sales.” Without competition, SPI can bid low, and because profitability is highly dependent on haul distance, they will be the only option.

With two mills currently in operation in Burney, six out of 22 contractors surveyed agreed that there are an adequate number and variety of mills in the area. Haul distance and types of material were frequently mentioned in interviews as two factors important to the economic viability of forest work. Several interviewees noted an increase in thinning projects as opposed to traditional large log harvests. Shasta Green is overall getting smaller logs than in the past, yet needs a mix of sizes for optimal efficiency and profit. They have had to reclassify materials and include smaller logs as saw logs that previously would have qualified as biomass.

For restoration projects that result in the harvest of small diameter trees and woody biomass, it is vital to have somewhere to take material. One of the first CFLR projects was stalled because the chips from thinning work were not worth enough to pay for the restoration work. When local mills cannot take harvested materials, they must be taken to facilities further away, which increases cost and reduces profitability. According to one interviewee, in some cases local capacity to store and utilize chips may exist, but biomass is taken to further sites because those facilities have more lucrative power purchase agreements than local facilities. Several interviewees highlighted the importance of community-scale biomass facilities currently planned under a California Energy Commission grant for these very reasons. These efforts continue and hold promise for adding value to chips. Local biomass facilities will keep chips local, create a handful of local jobs and, importantly, facilitate sustainable and more economically viable forest health projects.

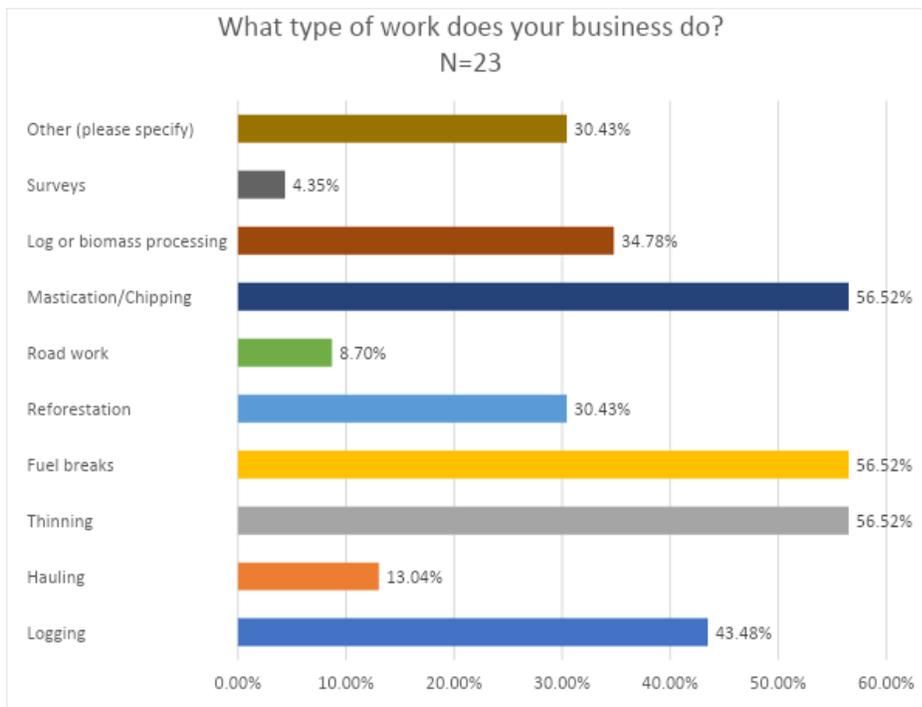
Local Workforce and Types of Work

Like local mills, the number of local contractors has declined in the past two decades. In the 1990s there were seven contractors in the Big Valley area and there are now two. Nevertheless, there are still a handful of forest businesses throughout the study area ranging in size from one to two-person outfits to over 40 employees. In the survey of forest contractors, twenty-three businesses either located in the study area, or with contracts in the CFLR area were surveyed. Of the twenty-three, eleven contractors are local to the CFLR region, with the majority located in Burney. Twelve contractors are not local, but the majority are located in the northern

California region, such as in Redding, Chester, or Quincy, with the furthest company located in Tuolumne County. Five are located in central and southern Oregon. All businesses surveyed have been in operation for over ten years, and three have been around for over fifty years.

In line with mills experiencing an increase in automation, interviewees reported a shift from traditional logging to more mechanical logging. The majority of survey respondents (65%) stated their work was equipment intensive. This creates a tricky balancing act for contractors who need to decide what types of equipment to invest in, and thus what types of work are available to them. Tubit Enterprises, one of the largest contractors in the area, does many different types of work, including logging, thinning, chipping, grinding, and some utility work in the off-season. Purchasing and maintaining the equipment to do this work is a risk that Tubit Enterprises was willing to make in hopes that diversifying would provide flexibility and ultimately pay off. Although 77% of contractors reported they are able to purchase or upgrade equipment when necessary, that does not necessarily mean that they are able to diversify. Some contractors prefer to stick with what they know, and for smaller outfits it does not make sense to have many different types of equipment without the labor to regularly use them.

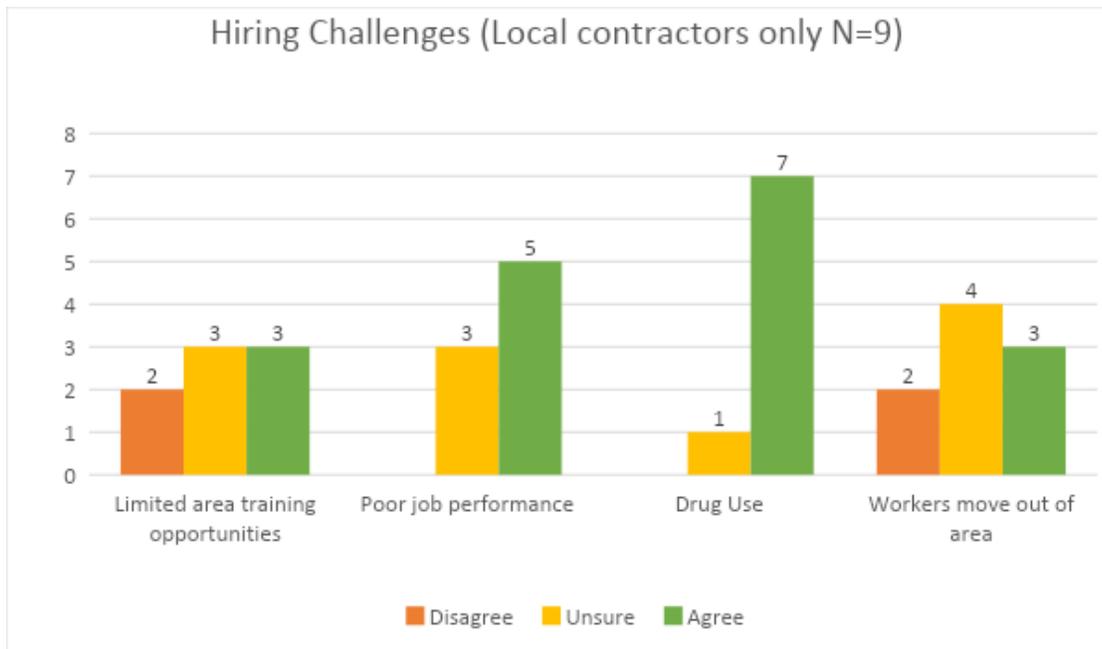
Also consistent with mills experiencing a larger proportion of smaller logs, interviewees reported an increase in the diversity of forest work. Just over half of survey respondents reported doing work such as hand or mechanical thinning of small-diameter trees, mastication, and fuel breaks, and 30% did reforestation, while 43% did more traditional logging, which entails removing trees that will end up at a mill.



Graph 13: Type of work done by contractors

Some contractors have been chipping for a long time because U.S. Forest Service contracts require it. However, some reported that it is just beginning to be profitable because areas that have burned since 2012 have been recognized as high hazard zones by PG&E. This has led to an increase in thinning work and biomass removal. One interviewee attributed this increase to an influx of Power Purchase Agreements and an increase in biomass electricity as well. For about half of survey respondents, overall quantity of work has increased over the last 10 years; for the other half, it has decreased. Consistent with what interviewees who said that forest health work is increasing because there is just beginning to be an outlet for biomass, one respondent stated that work “went down but has increased more recently...with a lot of debris removal on the fires but now back doing more tree work” and that “biomass plants are inconsistent with need.” Some of these increases can be traced to work advanced by the CFLR.

By most accounts there is enough work if not more than enough work coming out of the area. There is also a sense that there is enough contractor capacity to handle the work. Eighteen contractors out of 23 said there was enough work available to keep them going and 17 said they could increase their work. However, over half of the contractors surveyed said that finding qualified workers is a barrier for their business. Several local contractors noted that most of their employees were older and had been with the company for decades, while younger new employees were hard to come by despite limited alternative employment options in the area. The root cause of the limited workforce was unclear to interviewees. One contractor characterized the issue: “Nobody wants to work anymore...It’s hard to get young people that want to go out and work 10 hours a day. I mean we’re paying decent money.”



Graph 14: Barriers to hiring for local contractors

Survey responses help to identify workforce barriers. Drug use was an almost universal concern for local contractors, while poor job performance was also a common concern. Workers moving out of the area was another issue identified, as was limited training opportunities. Some

interviewees cited the lack of specific types of training or expertise. For example, one informant noted that because recent work tends to emphasize mechanical thinning of small diameter trees, people do not learn how to hand fell large trees, so when the need arises it is difficult to find people to do it. Interviewees also mentioned early hours and seasonality of this type of work as barriers.

Although there are a number of contractors doing consistent work on the landscape, interviews identified a lack of certain types of businesses or workers. It is difficult if not impossible to find local contractors who do labor intensive non-mechanical services such as reforestation, herbicide spraying, and pruning. California worker compensation laws are identified as the primary reason local contractors cannot compete with crews from Oregon. Some interviewees viewed this as a weakness in the local workforce. Only one of the contractors surveyed felt that out-of-state competition was a barrier for their business; he cited instead regulatory barriers that make it infeasible to do these types of work at all. There is also a shortage of small operations equipped to do work on small private landholdings. SPI will do work on private property as long as it can fill a truck, but there are very few one- to two-person businesses that can do smaller projects to contribute to fire safety and forest health on non-U.S. Forest Service, non-industrial lands. In addition to logging, it is a challenge to hire marking crews to prepare U.S. Forest Service project sites because wages are not competitive. Truck drivers to transport materials from the woods to processing facilities are another missing link. As a result of the Collaborative and partner work to secure a California Climate Investment grant, Shasta College now has a truck driving and heavy equipment operator program to help address this barrier.

In addition to in-woods workforce, there is a need for registered professional foresters and “-ologists,” or specialists who can conduct project planning by studying various aspects of the landscape and writing National Environmental Policy Act (NEPA) documents. The Hat Creek Ranger District lacks funding to hire needed personnel to do the planning to increase forest work. There appears to be a trend of small forestry consultants retiring and selling their businesses to a larger consultant group in Northern California, according to one interviewee. Cascade Resource Consultants is one of the few remaining such small businesses in the area, and employs about seven people. All of these components are critical to a robust regime of forest restoration.

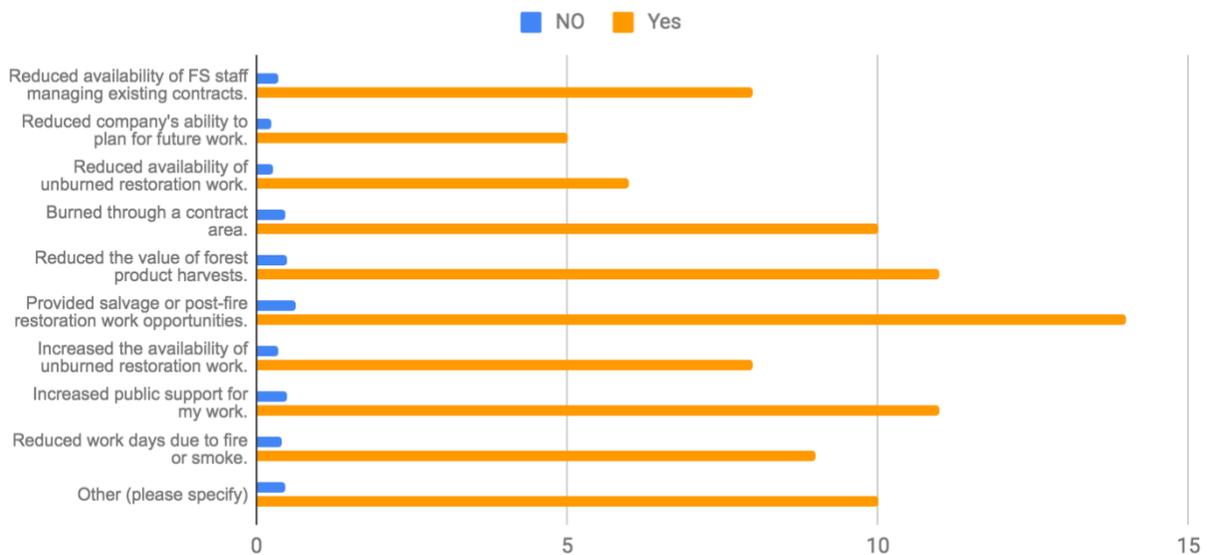
Fire

Like the rest of California, the Burney-Hat Creek area is familiar with fire and its effects. Wildfires can be devastating when they burn through communities. The Eiler Fire burned through Hat Creek in 2014, destroying 21 structures including a small restaurant and several houses. The Bald Fire also burned that year. The following year, a wind event felled standing dead trees in the burn scar, creating hazardous conditions for people living and traveling in the area. Fire takes an emotional toll: as one interviewee said, “The Hat Creek Valley used to be gigantic trees...[Fire] changed the visual landscape...so it’s been pretty tough on those communities.” It also creates hardships for small local businesses, especially those that rely on

the tourism industry. People do not want to travel to places where fires are burning and there is smoke. When this happens business slows for restaurants, lodging, and other local businesses.

For forest work, the Eiler and Bald fires detracted focus and resources from other ongoing forest work. In the aftermath of fires, there can be contention around salvage. According to interviewees, the Hat Creek Ranger district had an active salvage program in the 90s. Salvage has since declined, however. Some environmental groups are of the opinion that salvage logging should not happen at all. Others lament the loss of job opportunities for small local contractors. Although according to one contractor salvage work requires gambling on the quality of the wood, it does provide work opportunities for those willing to take the risk.

In what ways has wildfire affected your company? N=22



Graph 15: How wildfire has affected contractors

Nearly all contractors surveyed reported experiencing both positive and negative effects of fire. Half of respondents said that fire had increased public support for forest work, and 63% said fire had provided them with salvage or other post-fire work opportunities. On the other hand, 50% said fire had reduced the value of the products they harvested, 40% said fire and smoke reduced the number of days they were able to work, and 45% said a fire had burned through a contract area.

Prescribed fire rarely came up in interviews. One interviewee said that prescribed fire on U.S. Forest Service and private land has been slow and steady. Lassen Volcanic National Park does more prescribed burning because National Park Service policies differ from U.S. Forest Service policies.

Public Perception

Interview respondents indicate public perception of forest management is generally favorable. Local residents have ties to the valley and want to see it protected, and recognize the need to do thinning work in order to reduce fire danger and improve the health of the forest. As one interviewee expressed, “I love the forest thinning...I don’t want it to burn. To me personally the most important forest management is: I do want them to thin out the trees and the brush. I want them to let things burn when they can. But I want them to keep everybody safe.” Acceptance of forest thinning in the state has increased in the wake of high profile, destructive fires. However, outside tourists and activists do not always agree. Interviewees pointed to a need for education to increase support, and perhaps embrace a shift away from a traditional logging industry and toward forest health work.

Perceptions of the U.S. Forest Service are more variable. Partners have generally positive relationships. However, there is frustration with the slow pace of work, and people can see the differences between U.S. Forest Service land and managed private land. Several interviewees mentioned that having responsive and engaged leadership makes a huge difference in both the CFLR’s ability to push forward, and the public’s perception of the U.S. Forest Service and forest management.

Collaborative Outcomes

In a series of workshops, researchers and Collaborative members examined recommendations set forth in the 2010 Stakeholder Analysis to determine which of these have been accomplished. Some progress has been made toward a majority of the goals. Some are project-level goals with concrete outcomes while others are broader strategic recommendations, such as “Build trust by jointly planning projects,” that require ongoing effort. A table of all recommendations and their status can be found in Appendix E.

Collaborative Dynamics

The Burney-Hat Creek Community Forest and Watershed Group is unique among CFLRs because just under 60% of the project area is U.S. Forest Service land, meaning that cross-boundary work is central to achieving CFLR goals. Who is involved in the CFLR and how they work together is critical for increasing the pace and scale on U.S. Forest Service land, while maintaining a broad view and incorporating the interests of all land owners and partners, which include SPI, W.M. Beaty & Associates, Lassen Volcanic National Park, McArthur-Burney Falls Memorial State Park, the Pit River Tribe, and private ranchers, as well as the Sierra Nevada Conservancy, Lassen Forest Preservation Group, and County officials, continues to challenge the group. Interviewees stated that private landowners tend to be involved primarily to stay current and to be able to work strategically resulting in some cross-boundary work being accomplished. A few smaller local loggers are involved, but Shasta Green has not been involved

directly over the last eight years. After a number of years of consistent engagement, Pit River Tribal involvement became inconsistent with changes in natural resource managers with the tribe, though that appears to be shifting again as meetings shifted to a Zoom platform and new Tribal members have re-engaged.

The establishment of the CFLR resulted in about \$1 million per year dedicated to CFLR projects. These dollars can be used only for implementation on U.S. Forest Service lands, such as thinning, but not for planning, which includes project development and NEPA analysis. Interviewees speculated that because the Hat Creek Ranger District is receiving CFLR funds it does not receive as much appropriated funds as it may otherwise resulting in the District lacking the capacity to do the planning work at the pace and scale the group would like. In Collaborative meetings, projects and grants are discussed, but details of the CFLR budget in recent years have not been brought up. The U.S. Forest Service is the decision maker when it comes to CFLR fund use; the agency provides updates to the group when a CFLR-funded project is being implemented, which has at times frustrated the group when members felt more discussion was warranted. Previously, directives from the Regional Office led to regular budget updates, but these have fallen by the wayside. One interviewee suggested putting a budget discussion on the agenda could help improve communication. Although CFLR discussions center on work on U.S. Forest Service land, one interviewee expressed optimism that the group is getting to the point of selecting projects for multiple benefits, which impacts other landowners more.

Progress has been slow and it is a tribute in part to the CFLR that efforts persist. The first project of the Collaborative, Burney Gardens, was started among various partners in 2010 and took off with the establishment of the CFLR. Many of the projects currently under the CFLR were already on the Hat Creek Ranger District docket and were presented for CFLR input. Burney Gardens was the first project developed collaboratively. Bringing SPI, Beaty, Fruit Growers, and PG&E together to complete a single THP was a significant success. Early communications and field trips focused on permitting with agency personnel shortened a process that often takes nine months to a matter of weeks. In a paper about the unique dimensions of the Burney Gardens projects, Kelly and Kusel write, “Instead of responding to comments from agencies after the bulk of planning was completed, foresters were able to incorporate agency concerns into plan development” (2016). The project later ran into a roadblock – there was no market for the chips, hence thinning would not pay for the planned meadow restoration. Now, ten years later, it is starting to move forward again.

The Crossroads project is another group planned and designed project. Success has been in bringing diverse players together, though frustration has resulted from slow implementation. The Plum Project is another that has involved an effective working partnership between the Forest Service and the CFLR. Talking and movement, although frustratingly slow at times, result from diverse stakeholders coming together and developing shared goals. One interviewee believes the objectives are worth it:

I don't think that's unique to this kind of CFLR collaborative. It's just what happens when you get a bunch of different viewpoints in the same room and try to talk things through.

The things don't happen real quick. I mean, I don't know of a better alternative to some of the objectives of collaboratives groups. [Good is coming out of the Collaborative] enough that I consistently show up and participate.

In addition, building trust takes time, by doing one project together at a time, partners doing what they say they will to do and “sticking around after all these years.” The U.S. Forest Service, slow to adapt, has had to adjust to new ways of doing things to open up opportunities to move faster, which has been hindered by staff turnover and the willingness of individuals to take risks and stand up for the collaborative processes. This has required the Forest Service to involve the public in project planning at a much deeper level than the standard public comment periods. The CFLR crystallized collaboration as an outcome, encouraging agency personnel to actively engage as part of their job duties and increasing recognition for effective collaboration. Formal policies, such as prioritizing the lowest bid when contracting, have not changed, but interviewees reported a shift in mindset toward community ownership, and relationships are now strong enough to enable additional funding and work from partners as well as cross boundary work. The Badger project, for example, includes U.S. Forest Service and National Park Service land and is currently being planned.

BHCCFWG is now a model for other collaboratives. The CFLR developed without a roadmap and experienced setbacks along the way. On the one hand, turnover of Lassen National Forest leadership including five Forest Supervisors (counting two on short details) and at least five District Rangers (including two detailers)—hinders progress when Collaborative members have to bring a newcomer up to speed. Turnover has been a barrier to accomplishing CFLR goals, compounded by lack of funds for planning. But on the other hand, the Collaborative and the establishment of the CFLR have provided a needed continuity for the Forest Service as well as the landscape. Finally, the Bald and Eiler Fires of 2014 added to the capacity challenge by creating a sudden need for planning to complete salvage logging and reforestation. Interpersonal challenges among members have on occasion slowed progress.

Project Outcomes

In the first year of the CFLRP, the Hat Creek Ranger District treated 3400 acres. It now averages 5000 acres, a key success. However, there is recognition that this total needs to double to get to the pace of restoration work desired. Doing more work, larger projects, and more cross-boundary work are important outcomes. One interviewee who was not familiar with the CFLR noted that the Hat Creek Ranger District had been doing some larger projects in recent years. Another interviewee saw an increase in forest work for local contractors. Although communication with the public about the work of the CFLR could be improved to increase awareness of these outcomes, these statements indicate the importance of this type of work to the community. It is unlikely that the Hat Creek Ranger District would be able to move toward landscape-level work at the same rate without the CFLR.

Another direct outcome of CFLR funding is that it provided the funds for the U.S. Forest Service to enter into agreements with Cal Trout, Mule Deer Foundation, the California Conservation Corps, and multiple universities to do various stream, habitat, and other restoration work.

Other outcomes stem from the trust that has been built over time, partly as a result of support from CFLR funding. Several interviewees cited the ability for different groups to come together and talk about controversial issues as a success in itself. The group has developed agreement about ecological goals and is able to regularly engage in productive discussion. Having the support of the Collaborative and the CFLR helps makes for stronger proposals to granting agencies – occasionally some form of collaboration is a grant requirement – and helps prevent litigation. With the backing of an established group of diverse partners, projects are less likely to be sued by internal or external parties, and look stronger if they are litigated. North 49 was the last Collaborative project to be litigated. Less litigation means more time and money are going into achieving outcomes on the land. For non-U.S. Forest Service participants, communicating regularly with the U.S. Forest Service is a benefit and builds accountability. As one interviewee said, “Just meeting on a regular basis essentially helps them be accountable for performing in some respect. That there is a community group that is heavily vested in the success of federal land management and wants to see that succeed.”

In the past few years there have been many opportunities for state funds for forest work, and the strength of the CFLR made it well positioned to take advantage of these opportunities. Over \$13 million in grant funds have been brought in by the Fall River RCD and \$10,000 from other partners. Some interviewees were skeptical that this can be attributed to the CFLR, while others were confident that it can be. Although it is impossible to attribute grant awards wholly to the CFLR, it has contributed substantially to bringing in outside funding. Partners write and administer the grants because the Collaborative itself is not a 501c3 non-profit organization and cannot receive funds as an entity. In most cases, the partner would not have written the grant alone, or at least it would not have been as large or successful. Grants are often discussed during group meetings and designed to meet CFLR objectives, so they could not exist as they are currently without the CFLR. The \$7 million CCI Forest Health grant and the Department of Conservation Watershed Coordinator grant, both awarded to the Fall River RCD, are two of the most powerful examples of funds leveraged by the CFLR.

Leveraged funds as well as the CFLR help build partner capacity. Grant funding allows partners to hire people and do things they might not otherwise have done. CFLR activities lend support and direction to high capacity groups or individuals to develop projects, go after funds, and push things forward. It has also inspired the development of related organizations and efforts, such as the re-launch of the Burney Basins Fire Safe Council, Cascade Resources Consultants, two biomass-fired power operations in development, and a recreation collaborative.

As diminished U.S. Forest Service capacity has constrained moving forest health projects forward, building this capacity through the CFLR is another key outcome. CFLR dollars have helped hire seasonal and permanent employees on the Hat Creek Ranger District. Still, additional long-term staff are needed to move projects forward. To address frustration with the

slow pace of planning, CFLR partners are employing local workers in the Fall River RCD and Cascade Resource Consultants to help write NEPA for CFLR projects. This develops these skills locally, and allows the Hat Creek Ranger District to devote attention to other work that partners cannot do. U.S. Forest Service personnel are still needed to manage the work, but this is not always available. Strong, trusting relationships are needed in order for these new arrangements to work, and the U.S. Forest Service is adapting to doing things a different way, but challenges remain.

The U.S. Forest Service has limited ability to hire contractors that do not have the lowest bid. The CFLR advocated a change to this policy at the regional level but were unsuccessful, so they pursued a Master Stewardship Agreement to create hiring flexibility. The Fall River RCD signed the MSA with the Lassen National Forest so the RCD can write the contracts for the CCI implementation and structure them so they can prioritize local contractors and not simply the lowest bidder. In addition, through the MSA, receipts stay on the Forest instead of going back to Washington as is standard with a traditional timber sale. Projects like this offer a model for other organizations, both close to home, such as the Pit RCD, and those more distant.

The CFLR can address limited U.S. Forest Service capacity in other ways as well, such as writing letters of support and advocating for policies that facilitate work. The CFLR also provides continuity in the face of U.S. Forest Service turnover. Turnover and short-term details are common in the U.S. Forest Service. Long-standing Collaborative members help bring new hires up to speed and ensure that group projects continue to move forward.

Discussion

Although interviewees can easily point to outcomes of the CFLR, the connection between these outcomes, and general socioeconomic circumstances and community well-being are not always clear. Collecting data from a variety of sources and interviewing a variety of people can help draw these connections. The Collaborative is comprised of many groups and individuals that are independently involved and important in the community. It becomes more than the sum of its parts when member entities are strengthened through partnership, by coordinating and leveraging work to move collectively toward common goals. According to one interviewee, it is beneficial “just coming in and having the Collaborative and being able to work with the U.S. Forest Service and get projects and create that relationship. My position, Todd’s position, the RCD have strengthened from the CFLR, from these partnerships.” Especially in communities like Burney/Johnson Park where community engagement is already low, providing a platform for high-capacity individuals to organize is a huge asset to the community. Two case studies are presented in Box B.

Box B. Case Studies: Building Partner Capacity

Symbiotic Restoration Group is a small business started by a Collaborative member in recent years to do restoration work and be a funnel for recreation issues in the area. The Collaborative inspired the formation of a separate collaborative group to coordinate recreation development. Recognizing that the PCT and other recreation draws are economic drivers, the group will work on improving recreation opportunities and developing amenities to get people from the trails into town to spend money locally. Symbiotic Restoration has also been a leading force in revitalizing the Burney Basins Fire Safe Council, a longtime objective of the CFLR. Thus, this business spurred in part by the CFLR employs a few people directly and accomplishes work on the ground, has brought substantial grant dollars into the community, and catalyzed not one but two community organizations that benefit the local area. The Collaborative provided critical support and direction to help accomplish these things.

Cascade Resource Consultants is another example of a forest-related business that has benefited from the CFLR. One interviewee speculated that participating in the Collaborative helped the owners see an opportunity and feel more comfortable taking the risk of buying the consulting company. The business employs several local people and is building capacity to lead environmental analyses for private entities like Beaty and Burney Forest Power, as well as conducting work on U.S. Forest Service land through a California Climate Investment (CCI) grant.

The Fall River RCD has taken on the role of fiscal agent for most CFLR-linked grant proposals and manages most of the partner-led project components, such as the Master Stewardship Agreement (MSA) and a CCI grant, two of the biggest CFLR-leveraged accomplishments to date. The MSA allows the RCD to let the contracts for implementation of CCI work. The U.S. Forest Service, for the most part, must select the lowest bidder. Bidding low enough to be competitive in the pool, however, may not allow smaller contracting businesses to invest in the equipment needed to do the work or to diversify. Because the RCD has more flexibility in how they write contracts, they do not need to select the lowest bidder and therefore can favor local contractors and biomass facilities, thus building local capacity to do restoration work and keeping grant funds within the community. The Pit RCD has had success with this approach in the past. In addition, with NGO investment into a federal project, the revenue can be kept in motion for the next project instead of going back to the federal coffers. Continuing to build capacity with the RCD and other partners to do NEPA and implementation is also beneficial, as it increases local knowledge. Addressing U.S. Forest Service capacity limitations is important to moving projects forward.

Another key component of the CCI grant, which also invests in local workforce capacity, is the development of a Heavy Equipment Logging Operations certificate through the Shasta College Logging program. A total of \$3.2 million in CCI funds were used to purchase equipment, develop curriculum for the field course, and pay the salary for one full time staff member. Shasta College became the first educational institution in California to become a Licensed Timber Operator. SPI is allowing students to operate on 45,000 acres of timber land and has

agreed to buy logs from the program. CalFire has already granted Shasta College Phase II funds to continue to develop the program and purchase log trucks. Revenue from logs will eventually contribute to equipment maintenance, staff salary, and other expenses. This certificate now accompanies the FIRST SEAT program which places students in internships with local loggers, and is already serving as a model for other community colleges in forested areas. Several local loggers have hired graduates of the program. In addition to providing training, the field course gives students a sense of whether they like the work and may be more likely to stay in a logging job longer. Courses in ecology and related subjects produce educated workers who have a sense of how they are contributing to the larger picture of forest health.

The Shasta College portion of the CCI grant proposal was developed by the Fall River RCD and the Collaborative in partnership with the college, recognizing the importance of developing a trained workforce for creating local employment in forest restoration, and strengthening relationships between the program, industry partners, and the CFLR. The CFLR and the Collaborative have contributed to building the capacity of the RCD to apply for the CCI funds, and lent support to the proposal. Outcomes of the program are tied to Collaborative goals for workforce development; it is a step toward filling in gaps in local forestry employment.

With more work being done and the forestry workforce being expanded, there is a need to better utilize the high volume of biomass being removed from the forest through restoration and logging projects. The two small-scale biomass power plants currently in progress are being developed by entities outside the Collaborative. Biomass utilization has become an important component of CFLR work based on the idea that supply will ultimately come from forest health projects in and around the CFLR area. Facilities, when built, will provide permanent, on-site jobs, in addition to trucking jobs and forest jobs.

Finally, simply doing more forest restoration work is beneficial to the well-being of the community. In the words of one interviewee, “The more acres we treat, the less fires we have, and the more money that gets filtered into the community for a variety of different things, and the more prosperous are our communities.” Generating more work on the ground means more work for local contractors. According to one interviewee, “if there’s more consistent work out there, they’re more likely to hire more people and staff inside and try to secure that work rather than let other outside contractors kind of compete and win it.” It also means reduced risk of high-severity fire and improved “viewsapes,” which benefits tourism. Acres treated per year have increased since the beginning of the CFLR, but still need to double in order to be at the desired pace and scale.

Conclusions and Recommendations

Because the major industries in the Burney-Hat Creek area depend upon forest health, the Burney-Hat Creek Community Forest and Watershed Group and CFLR have the notable opportunity to directly influence community well-being in their efforts to increase forest work and keep the benefits local. In addition to doing more work on the landscape, the group is well

positioned to facilitate a successful shift from traditional logging communities to a forest restoration economy by continuing to build partner capacity, investing in workforce development, and developing economical outlets for woody biomass.

Building Partner Capacity

CFLR goals are ultimately advanced by individual members of the Collaborative. One of the most important outcomes has been bringing diverse partners together to develop a common vision for the forest and communities and providing support for local organizations to pursue that vision in a coordinated way. Continuing to develop the capacity of partners is critical as the group advances projects in the CFLR area, works to overcome limitations of U.S. Forest Service capacity, and brings funds and knowledge into the area. Revitalization of the Burney Fire Safe Council and the Recreation Collaborative are two excellent examples of local capacity building.

Investing in Workforce Development and Local Contracting

The Collaborative has made strides in the area of workforce development and local contracting. Innovative agreements and partnerships have brought in over \$13 million – both through large grants like CCI and the Watershed Coordinator grant, and through U.S. Forest Service agreements with organizations such as Mule Deer Foundation, University of Nevada Reno, and Sierra Institute to do CFLR-related work – and catalyzed increased local training and employment. The Collaborative can capitalize on momentum by following through and expanding on existing projects while continuing to push for improved U.S. Forest Service policies in this realm.

Developing Outlets for Woody Biomass

Biomass utilization is essential to the vision of landscape scale forest restoration that the group is working towards. Facilities are being developed between CFLR partners and entities within the CFLR area, and also bring outside partner expertise into the area. The CFLR represents a catalyst and helps build confidence that supply will flow from CFLR and partner projects. Supporting the leading partners, contributing to bringing in grant funding, and working toward supply agreements has contributed to biomass development efforts and wood products businesses, and bodes well for achieving long-term ecological and socioeconomic goals.

Who is participating?

A final recommendation is to think critically about who regularly participates in CFLR activities: Who is missing? Why? How can the Collaborative encourage and facilitate participation? Ranchers and the Pit River Tribe are two groups with land within the Collaborative area but have not consistently participated in meetings. With the Tribe, past interpersonal challenges have caused tensions and strong leadership is needed to bring partners together to move

forward. Industry partners such as Shasta Green and local loggers (one local contractor does participate) have an interest in the work of the CFLR, and could provide valuable contributions to workforce development efforts. Those who are aware of the CFLR value its work. A final consideration as part of this conversation about participation, although not an immediate concern, is how to establish the group so that it does not rely on individual members but can continue to foster strong partnerships, forest restoration, and socioeconomic well-being into the future.

References

Consolidated Appropriations Act of 2012. Section 4003 p.4-8

Kelly, Erin and Jonathan Kusel. 2016. "Cooperative, cross-boundary management facilitates large-scale ecosystem restoration efforts." *California Agriculture*. 69(1): 50-56.
<https://sierrainstitute.us/new/wp-content/uploads/2018/05/E.-Kelly-and-J.-Kusel-2016.pdf>

Kusel, Jonathan. 1996. *Sierra Nevada Ecosystem Project: Final report to Congress, vol. II, Assessments and scientific basis for management options*. Davis: University of California, Centers for Water and Wildland Resources.

Kusel, Jonathan and Ann Moote. 2010. *Burney Creek - Hat Creek Community Forestry Project*. Sierra Institute for Community and Environment.
https://www.dropbox.com/s/bii63gm0yq28tqw/2010_BHCCFWG_Socioeconomic_Report.pdf?dl=0

Reeves Jolley, Allison, Jonathan Kusel, and Erica Hann. 2016. *USFS Collaboratives and Local Benefit: What's Local Anyway? A Case Study Approach to Defining Local*. Sierra Institute for Community and Environment.
https://scale.sierrainstitute.us/scale/uploads/Defining_Local.pdf

Swezy, Camille, Allison Reeves Jolley, and Jonathan Kusel. 2016. *Monitoring Socioeconomics within Collaborative Forestry Projects: Trends in Practices and Challenges*. Sierra Institute for Community and Environment.
https://scale.sierrainstitute.us/scale/uploads/Socioeconomic_Monitoring.pdf

Urgenson, Lauren S., Clare M. Ryan, Charles B. Halpern et al. 2017 "Visions of Restoration in Fire-Adapted Forest Landscapes: Lessons from the Collaborative Forest Landscape Restoration Program." *Environmental Management*. 59(2): 338-353.
<https://doi.org/10.1007/s00267-016-0791-2>

US Census Bureau. (2019). *Industry by sex for the civilian employed population 16 years and over, 2019 American Community Survey 5-Year Estimates*. Retrieved from
<https://www.census.gov/programs-surveys/acs/>

Appendices

Appendix A: Community Capacity Worksheet

**Sierra Institute Socioeconomic Monitoring: Community Capacity Assessment
Workshop**
August 4th, 2020

Community Name _____

Please circle the number that best reflects your community's level of capital or capacity (on a scale of 1-5, 1 being the lowest level of capital or capacity and 5 being the highest level). Use space beneath each type of capital to provide narrative information. For example, describe the unique or important characteristics of your community that informed your decision. Additional space is provided at the end of this worksheet.

FINANCIAL CAPITAL

LOW 1 2 3 4 5 HIGH

(Availability of dollars for local uses and projects and to meet pressing local needs. These may be public dollars or private dollars, but if private they are tightly linked to community purpose and not just self-interested purposes.)

Please describe why you rated this community as you did in the box below.

HUMAN CAPITAL

LOW 1 2 3 4 5 HIGH

(Individuals with knowledge/ability to address conditions and stressors of concern; it is also the experience and capabilities of local residents their willingness to use these locally.)

Please describe why you rated this community as you did in the box below.

Appendix B: Community Capacity Narratives

Montgomery Creek/Big Bend: **2.5**

The towns of Montgomery Creek and Big Bend each have a post office, school, and small convenience store. Overall the community is very impoverished. Many long-term residents seem content despite low socioeconomic status and there are a few very capable residents and well-educated people who have the desire and knowledge to seek improvement. There are a few small businesses such as logging companies, and a large PG&E presence due to hydropower on the Pit River, and presence of the cannabis industry. However, there is very little opportunity to spend income locally and so it does not go into the community or toward local needs. The cannabis industry pollutes water sources, exacerbates social issues like substance abuse, and creates tension between long-term residents and those who come in just for the growing season.

The population is scattered throughout the area, and most residents have their own septic and water systems. Shared infrastructure includes roads, phone and power lines, and schools. The schools, while under-resourced, have good facilities, including a pool in Big Bend which is sometimes open for community use. There is a local radio station and teen center, and folks tend to come together to help their neighbors. Hill Country Health and Wellness was started by a group of individuals and it is a large local employer and has awakened talent within the community. Big Bend has a unique culture that includes tribal families, forest work, PG&E PSEA camps, and fishing and fly fishing as well as an influx of homesteading families due to the cannabis industry.

Burney/Johnson Park: **2.5**

In Burney there is a mix when it comes to community engagement. There are many civic-minded and engaged people who tend to be involved in many different things and are spread thin. There are good school teachers, engaged families, church groups and other groups that work together, and an influx of educated retirees who stay involved in the community as long as their health allows. However, there is also a lot of apathy and people vocal about a need for community-wide changes but without the capacity to follow through, likely spurred by low socioeconomic status and lack of opportunity. There are a few large events and some fundraisers but not a lot of opportunity for people to gather outside of that and there isn't a push to maintain or develop new programs. Young people leave the area in search of education and career opportunities but there are very few opportunities for them to return in a professional capacity. The schools are in good shape and there are parks, and efforts around building a community swimming pool and creating a youth soccer league, but there is a lack of community engagement to maintain the existing facilities and programs and develop new ones. Donations to community efforts tend to come from local business owners and are therefore directly linked to the local economy, so economic downturns highly impact contributions to community efforts.

People take pride in the natural beauty and outdoor recreation of the area and love to share their experiences with others. Road infrastructure is good with CalTrans and the county roads department constantly improving. The school district and water and sewer infrastructure have been or are being improved through state revolving fund grants and funds from the nearby windmill project. Burney has a lot of industry, including two mills and Dicalite Minerals Co. However, other infrastructure is lacking, and there are many vacant lots on the main street.

Johnson Park is more of a residential area than a self-sufficient community and relies on the infrastructure and services of Burney. There is a gas station, one restaurant and many small neighborhood streets and mobile home parks. There are a few community organizations and individual citizens that fundraise, access grants, and advocate for the community, and there is a lot of poverty. In the past there have been united efforts against rising water prices and crime, but often people experience stressors and do not know how to address them. Different groups in the area experience shared bonds, such as loggers, Native Americans, and church groups, but the groups do not tend to come together. The roads along 299 are well maintained due to CalTrans. The water system needs improvement and the high cost of water is an issue. Homes, trailer parks, and the few businesses are old and in disrepair. It is a depressed area with not a lot of resources or leadership. There is a collective love of the area but little identity or organization as a community.

Cassel/Hat Creek/Old Station: **3**

Hat Creek and Old Station share many characteristics. There are long-rooted families, monied ranch owners, and wealthy second-home owners (such as Clint Eastwood whose home was previously owned by Bing Crosby) alongside residential areas and pockets of poverty. There is strong community involvement from some, but others are working hard to avoid poverty and do not have time to get involved. There is a small population of mostly elderly people with a lot of local knowledge and common experiences who work together to get things done. There used to be more community assets such as a theatre which is now closed, but there are still some large annual events. In some areas residents are well served by the roads, schools, fire departments, and wells and septic tanks. In Old Station there are no schools and the few children are bused to Fall River Mills, and the volunteer fire department can barely stay open due to lack of volunteers. Residents of Old Station are served by one private and two mutual water companies.

The Hat Creek Valley is beautiful and tourism is a primary driver of the economy. There are several RV parks and cabin rentals, as well as fly fishing on Hat Creek and the only hang-gliding place in eastern Shasta County. Overall, people are independent and the area has decent overall capacity, although there is room for improvement in all areas.

Fall River Mills/McArthur: **3**

The Fall River Mills/McArthur has a population that is very dispersed, and in practice includes the area of the Burney block group north of Lake Britton. Despite the geographic

spread, it is a tight knit community that shares schools and infrastructure. There are strong ties to ranching families, especially founding families, and related values, and there is a growing community of Hispanic and migrant workers. Overall there is a lot of pride in the community, some wealthier families, and high capacity individuals that contribute to the schools and other religious and social organizations and work to meet the needs of the community. Retirees from out of the area bring in wealth as well. Bringing talented individuals together, bridging cultural boundaries, and communication and follow-through have been challenges, but things still do get done and there are a lot of community events.

The area possesses an elementary and high school, grocery stores, gas stations, hospital, and amenities such as a movie theatre and restaurants, as well as infrastructure such as roads. However, much of the infrastructure and buildings are old and in need of updating. The water system is not capable of meeting demand for the communities. There is newer infrastructure where there is more wealth along the Pit River, which draws in tourists for fly fishing and outdoor recreation opportunities.

Big Valley: 2

The Big Valley area is largely agrarian with some large landowners, logging, and CalFire and USFS presence, and two small towns. There is a local gas station, grocery store, healthcare center, fire department, and schools, but not a lot of businesses or lodging. There is not a large diversity of trades represented in the community. There are a few professionals with knowledge of grant writing and some government jobs, but there are also a large number of people living in poverty. The loss of the timber mill was devastating and the area has deteriorated over the past 30 years, and there is a need for a boost in employment. Roads and school buildings are old, and infrastructure could use improvement but is generally adequate. The primary concern is whether the water table can continue to meet demand for the amount of land used for agriculture.

Many families have been in the logging or ranching industry in the community for generations and have a strong sense of tradition and family ties to the area. However, not all share those ties: young people tend to leave the area permanently, and differing opinions sometimes take precedence over common good. Despite differences, people tend to come together and utilize local resources to support youth, raise funds for needs such as an ambulance, and help one another in difficult times. The strength of the community comes from the resilience of its residents.

Appendix C: Contractor Survey

BHC Contractor Survey

Business/Demographics

1. Where is your company located?

* 2. (For the interviewer only): Is this company local?

Yes

No

Unsure

3. How many years has your company been in operation?

4. Would you say the majority of your company's work is . . .

Equipment intensive

Technical

Labor intensive

Other (please specify)

1

5. What types of work does your company do? (Interviewer checks all that apply and doesn't ask them individual options.)

- Logging
- Hauling
- Thinning
- Fuel breaks
- Redirection
- Road work
- Mastication/Chipping
- Log or biomass processing
- Surveys
- Other (please specify)

6. Is your company any of the following? (Check all that apply.)

- A small business
- An (R) minority owned business
- Located in a HUB zone
- None of the above

7. How many employees does your company have?

8. How has the number of employees changed in the last 10 years?

9. How many of your employees are within the following age ranges?

18-30	<input type="text"/>
31-55	<input type="text"/>
> 55	<input type="text"/>

10. What is the average number of years your employees stay with the company?

11. Any of your employees live in the Burrey-Hat Creek area? If so, how many?

12. LOCAL ONLY: Which of the following are hiring challenges for you? Please respond with agree, disagree, or unsure.

	Disagree	Unsure	Agree
Limited area training opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor job performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug Use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workers move out of area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

13. How has the borne dry tons harvested/processed/used per year changed in the last 10 years?

14. If applicable: Where do harvested materials from your company typically go? Specific company names would be helpful.

15. What percent of your company's work occurs on federal lands?

16. In what states does your company work in?

17. In what California counties?

18. In what National Forests?

19. LOCAL ONLY: We're curious to understand your barriers to doing more work in the Hat Creek RD. Please say whether you disagree, agree, or are unsure about the following statements.

	Disagree	Unsure	Agree
There is not enough work available on the Hat Creek RD.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not have the equipment or training necessary to do available work in Hat Creek RD.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are regulatory barriers to doing the work available on the Hat Creek RD.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other National Forests or private landowners offer better prices than the Hat Creek RD.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is too much competition among other local contractors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is too much competition from out of state contractors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

20. Has your company upgraded or purchased new equipment in the last 10 years?

- Yes
 No

21. Do you feel like any of the following are limiting factors for your company's success? (Ask each option as a conversational question.)

	Disagree	Unsure	Agree
There is enough work available to support my business.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My business has the ability to increase its work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are an adequate number and variety of mills in my area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to find enough qualified workers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to purchase or upgrade equipment when needed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>		

22. Has your business benefited from the Shasta College Forestry Program?

- Yes
 No
 Not sure
 Am not aware of program

23. Do you believe you have benefited from the Burney-Hat Creek Community Forest and Watershed Group?

- Yes
 No
 Unsure
 Am not aware of this group

Appendix D: Interview Guide

BHCCFWG Socioeconomic Monitoring Assessment

Interview Guide

Introduction:

- Introduce yourself and other persons present, position(s).
- Give brief recap of Sierra Institute and its relationship to the Burney-Hat Creek Collaborative Forest and Watershed Group (BHC).
- Provide recap of BHC/CFLR socioeconomic monitoring assessment: purpose, methods, desired outcomes.
- Review map and its purpose as a visual aid.
- Consent [directed to informant]:
 - Your responses will remain anonymous but will inform a written report provided to BHC/USFS and made publicly available online (your name will not be attached to any information you provide unless you give explicit permission). Is that okay?
 - Is it okay if we record the interview to make sure we capture your ideas effectively?
 - You may choose to end the interview at any time and you don't have to answer any question that you don't feel comfortable answering.
 - Any questions before we get started?

I. General (Warm-Up)

- Interviewer and Interviewee Identification for recorder
- Do you live in the BHC CFLR area?
 - How long have you lived in the area?
- What kind of work do you do? Please describe.
 - How long have you been doing that kind of work?
 - (If applicable) How long has your business been around?
- Are you aware of the BHCCFWG?
 - Have you been involved and if so in what capacity?

II. General Economy -

- How do you feel the area's economy has been doing over the past 5-10 years? Explain.
- What types of employment support your community and neighboring communities?
 - What have been the trends in employment types in the last 10 years, and why?
- Have there been any changes in local tourism over the last 10 years?
 - Causes?
 - How have local communities been affected?
- How is shelter in place affecting local businesses? How do you think the current recession will affect the area?

III. Forest Economy / Capacity

- How have you seen the forest industry change (if at all) over time since you've been here? Specifically, the last 5-10 years.
- What kinds of local forest management companies are in the area? Any sense of the number of employees?
 - What kinds of services do those forest management companies provide?
- What kinds of facilities either handling or producing wood products (biochar, co-gen, mills, firewood cutters, railroad depots, log truck companies) are in the area?
 - Have any of them been affected by the CFLR's activities?
- *For wood facilities:* Any guess (or records if available) of fuel consumption? Operational capacity? Operating volume of wood? Available railroad depots for transport? Operational capacity for trucking transportation?
- *For wood facilities:* Have you received any wood from BHC projects?
 - If so, what kind and how much?
 - What has the wood been used for?
- How successful has your or other organizations been at completing NEPA/CEQA permits in the CFLR area?
 - Can you give me an example (type of project, how long it took, etc.)?
- What kinds of projects have been taken on by collaborative members?
 - How many do you think in total?
 - What about agreements signed or planned?
- How are shelter in place guidelines affecting forest work? How do you see this pandemic affecting forest work into the future?

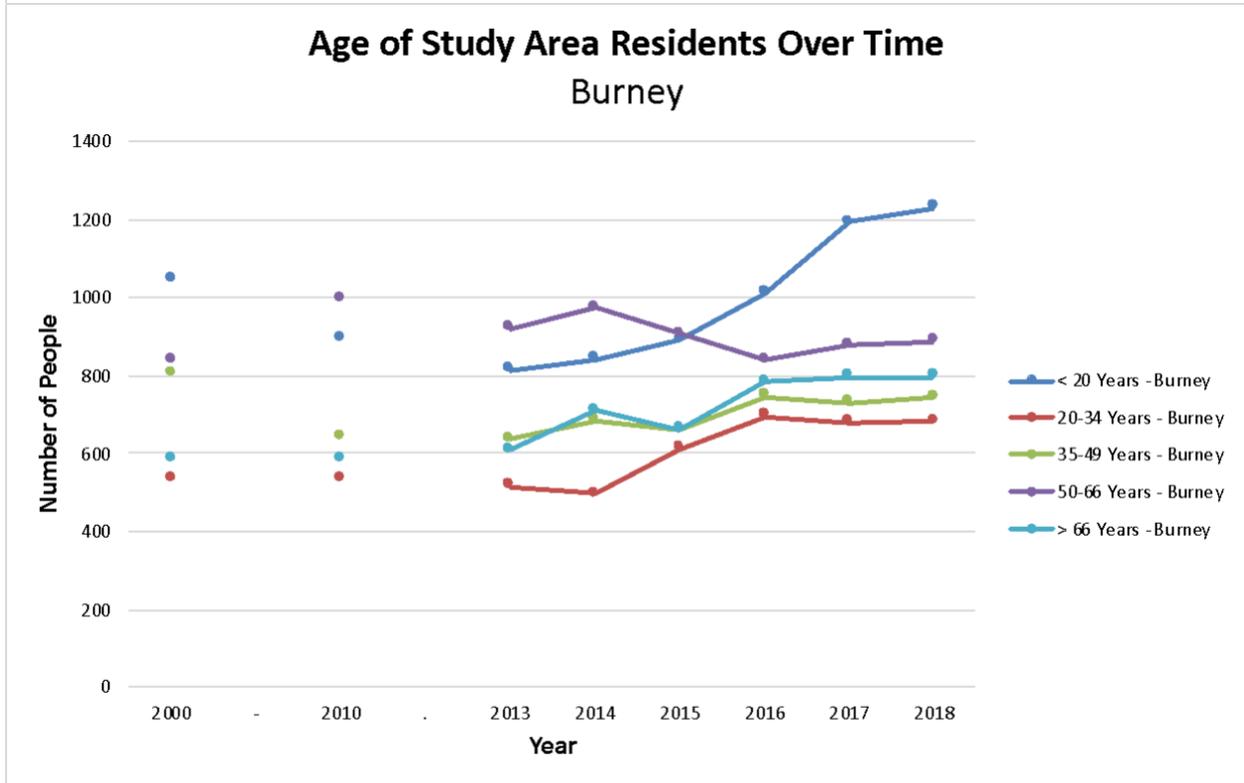
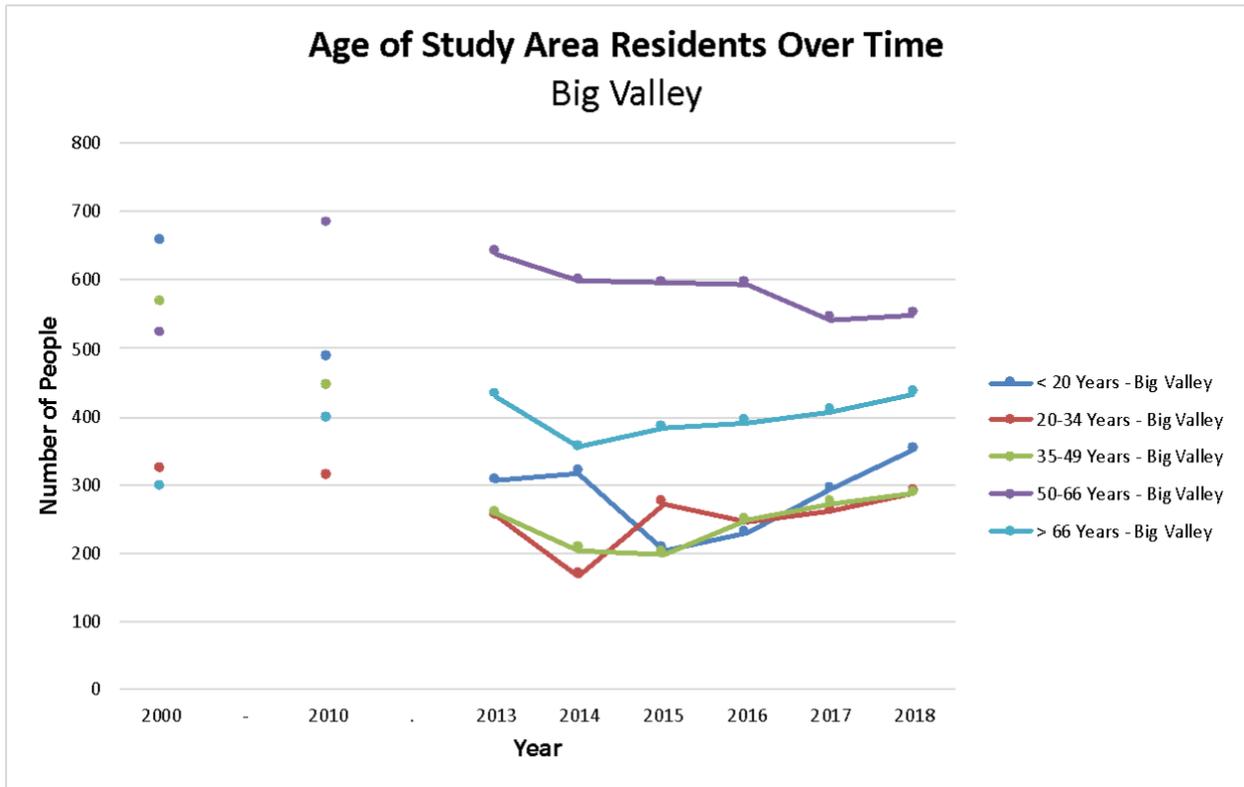
IV. BHC Specific << *If knowledgeable about the Collaborative* >>

- How would you describe the relationship between the CFLR/BHC and the local community?
- How do you feel the CFLR/BHC has impacted forest management in the area? Give specific examples and projects when you can.
- Has the Burney-Hat Creek Basins Project created local jobs or benefited local businesses in some way?
- Have outdoor recreation opportunities and use changed due to the CFLR? (improvement/construction of trails, campgrounds; recreation programs; types of recreation)
- Has the BHC Group led to specific outcomes (e.g. projects, institutions, events) that have affected local communities in a measurable way? In other words, what would not have happened had the group not formed? Please give examples.
- Are there any known trainings provided by or associated with the CFLR?
 - If so, what are they? How well-attended are they?
 - What kinds of programs and trainings does the CFLR do to increase local workforce capacity (technical skills, etc.)?

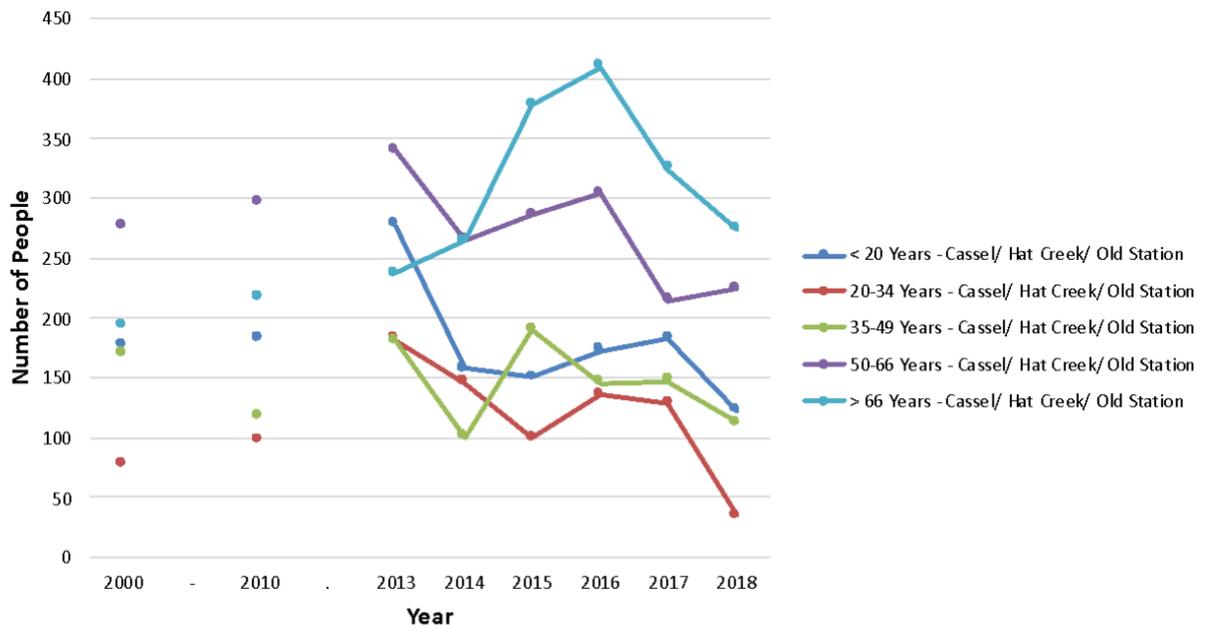
V. Conclusion

- What do you see as the most prevalent connection between the Burney-Hat Creek Basins Project and/or local forests and local socioeconomic wellbeing?
- Who are other key people/area community leaders that we should be talking to about local socioeconomic issues?
- Is there anything we didn't cover that you'd like to mention?
- May we contact you if we have additional follow-up questions?

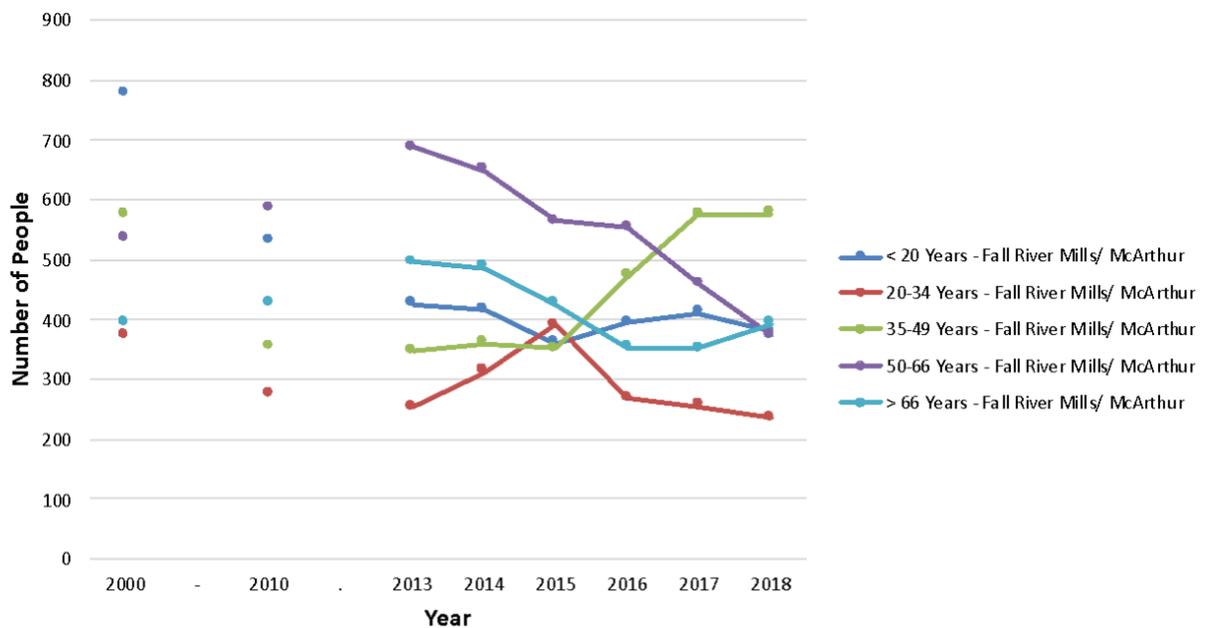
Appendix E: Additional Graphs

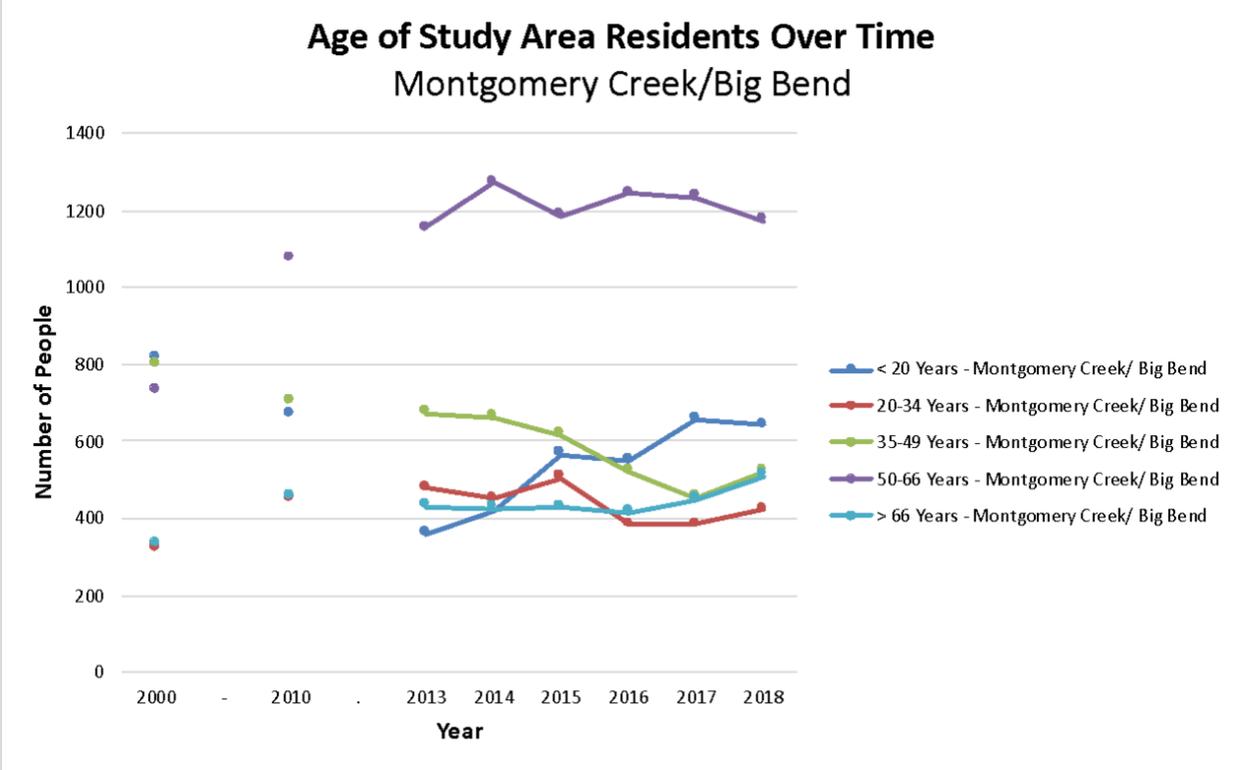
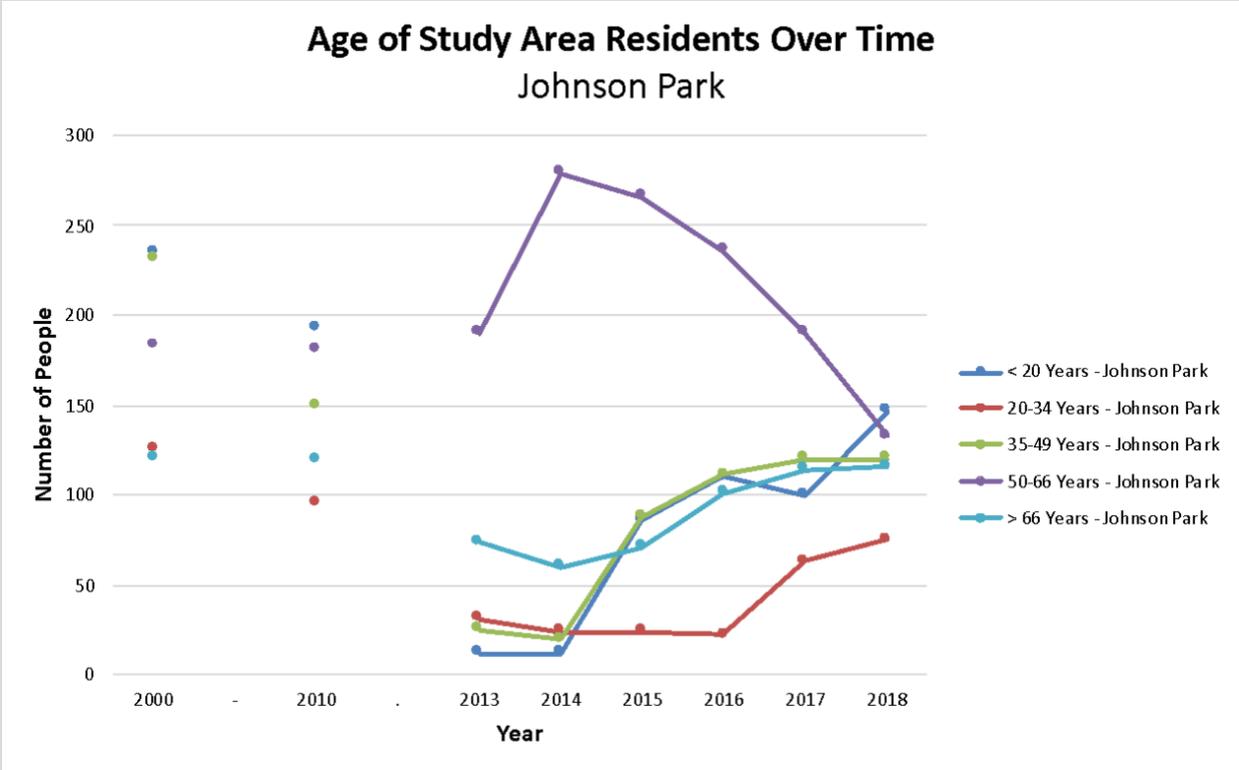


Age of Study Area Residents Over Time Cassel/Hat Creek/Old Station



Age of Study Area Residents Over Time Fall River Mills/McArthur





Appendix F: 2010 Stakeholder Analysis Recommendations

Recommendation	Status
Devote more resources to Forest Service project planning, environmental review, and contracting.	Some progress made, efforts ongoing
Engage environmental groups and forest industry in Forest Service project planning and contract development to ensure that projects are environmentally acceptable and economically feasible.	Accomplished, efforts ongoing to maintain/increase participation
Focus first on smaller-scale thinning-from-below and biomass projects that won't face too much opposition.	Some progress made, more opportunity to continue efforts
Plan different types and scales of projects to support different size operators.	Accomplished
Build trust by jointly planning projects.	Accomplished, efforts ongoing
Start with a condition assessment, to identify problems and their causes.	Some progress made, efforts ongoing
Share project planning and environmental review tasks.	Some progress made
Look into tools like long-term stewardship contracts, cooperative agreements, and the Biomass Crop Assistance Program that may facilitate contracting and reduce the treatment costs on federal land.	Accomplished
Advocate for transferring funds from firefighting to fuels reduction.	N/A
Subsidize fuels reduction on private land.	Has been facilitated through grants and the Fire Safe Council
Set up a small clearing and chipping business with a mobile chipper to treat brush and small trees on private land	Accomplished in the form of the Burney Basins Fire Safe Council

Encourage large private forest owners to hire local crews for small lopping, thinning, and hand planting.	Some progress made but more crew development needed
Involve youth in ecosystem maintenance, restoration, interpretation, etc.	Not accomplished through the CFLR
Use field tours and photos to show the benefits of fuels reduction projects.	Accomplished
Create a volunteer corps to monitor recreational use in the national forest and educate users.	Some progress made
Develop a restoration education curriculum for schools.	Initiated but support needed to continue
Organize river cleanups.	Accomplished within CFLR footprint
Create a lecture series at the library or community center.	Not accomplished
Create a Fire Safe Council in Burney.	Accomplished
Improve connectivity; expand cell towers and Internet access.	Not accomplished
Beautify Burney: clean up Main Street and clear brush around town and recreational areas.	Partly accomplished through connection to work of the newly re-launched Burney Fire Safe Council
Work with local businesses to determine how to support local jobs.	Some progress made
Communicate with local businesses to determine what types of projects would most effectively support existing jobs.	Some progress made
Complete a market analysis and feasibility study on the economic viability of expanding recreational opportunities.	Recreation collaborative started to do recreation study and promote opportunities
Create an advertising campaign to promote local recreation opportunities.	Initiated

Target underdeveloped recreational uses, for example, mountain biking, bird watching, hang gliding. Plan and build more trails, better fishing access points, and perhaps areas designated for specific uses.	Some progress made
Bring in more tourist-oriented shops to Burney.	Not accomplished
Develop interpretive information for the Volcanic Scenic Byway, the state park interpretive center, and Hat Creek Visitor Center.	Some progress made
Plan wildlife habitat improvement projects, e.g., meadow enhancement and forest management.	Accomplished
Plan noxious weed control projects.	Progress made
Remove muskrats from Hat Creek.	Not accomplished
Examine and address riparian area degradation between Burney and the state park (e.g., adapt livestock grazing, vegetation removal, and stream modification, including diversions).	Accomplished