

# Socioeconomic Assessment and Stakeholder Analysis

## The Dinkey Forest Landscape Restoration Project

**Jonathan Kusel, Andrew Spaeth, Kyle Rodgers, and Zach Revene**



**Sierra Institute**  
for Community and Environment

## **Acknowledgments**

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**FINAL REPORT**

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## Table of Contents

List of Figures.....	ii
List of Tables.....	iv
Executive Summary.....	2
I. Introduction.....	5
II. Stakeholder Analysis.....	8
Introduction.....	8
Forest Management.....	9
A Viable Wood Products Industry is Vital to Forest Management.....	10
Native American Involvement in Dinkey Creek Work.....	11
Contracting with the Forest Service.....	13
Local Economy, Employment, and Community Capacity.....	15
Precedent Setting Dinkey Creek North and South Project.....	18
Water Shortages and Future Development.....	18
III. Socioeconomic Assessment.....	20
Overview of Selected Indicators and Measures.....	20
Data Sources .....	21
Community Profiles.....	23
Auberry, CA.....	23
Big Creek, CA.....	25
Shaver Lake, CA.....	27
Terra Bella, CA.....	29
Cold Springs Rancheria, CA.....	32
Big Sandy Rancheria, CA.....	33
Capacity Measures by Community.....	35
Income and Impoverishment, Education, and Public Health	
Income and Impoverishment.....	37
Education.....	41
Public Health.....	45
Historic and Cultural Character and Economic Vitality	
Economic Vitality.....	49
Historic and Cultural Character.....	53
IV. Discussion.....	64
Building Local Contracting Capacity to Enhance Socioeconomic Benefits.....	64
Engaging Native American Communities in Ecological Restoration Work.....	65
Some Examples That Can Inform Dinkey Work.....	65
Cultural Burning and Non-timber Forest Products.....	67
Employing Lessons Learned from Biomass Utilization Efforts in the West.....	68
V. Conclusion.....	70
Stakeholder Analysis: Summary of Key Findings and Recommendations.....	70
Key Findings from the Socioeconomic Assessment.....	73
VI. References.....	77
VII. Appendix.....	78



## List of Figures

Figure 1. Map of Communities in the Vicinity of DLRP .....	6
Figure 2: Interests Represented in Stakeholder Analysis Interviews.....	8
Figure 3. Population Change by Age Groups in Auberry.....	24
Figure 4. Changes in School Enrollment by Grade in Auberry.....	25
Figure 5: Total Population by Age Groups in Big Creek.....	26
Figure 6: School Enrollment by Grade Level Groups in Big Creek.....	26
Figure 7: Population Changes by Age Groups in Shaver Lake.....	27
Figure 8: Changes in School Enrollment by Grade Level Groups in Shaver Lake.....	28
Figure 9: Housing Vacancy in Shaver Lake.....	28
Figure 10. Map of the Dinkey Site relative to Terra Bella.....	29
Figure 11: Population Changes by Age Groups in Terra Bella.....	30
Figure 12: Changes in School Enrollment by Grade Level Groups in Terra Bella.....	31
Figure 13: Change in Race as a Percentage of Total Population in Terra Bella.....	31
Figure 14: Population Changes by Age Groups on Cold Springs Rancheria.....	32
Figure 15: Changes in School Enrollment by Grade Level Groups on Cold Springs Rancheria.....	33
Figure 16: Population Changes by Age Groups on Big Sandy Rancheria.....	34
Figure 17: Changes in School Enrollment by Grade Level Groups on Big Sandy Rancheria.....	34
Figure 18: Changes in Median Household Income by Community.....	38
Figure 19: Percentage of Families Living Below the Poverty Line by Community.....	39
Figure 20: Change in the Percentage of Female-Headed Households by Community.....	40
Figure 21: Change in the Percentage of Female-Headed Households on Cold Springs and Big Sandy Rancherias.....	40
Figure 22: School Locations and School Districts near the Dinkey Landscape.....	42
Figure 23: FRPM Participation as a Percentage of Total Student Enrollment.....	43
Figure 24: Percentage of Population with Health Insurance Coverage by Community.....	45
Figure 25: San Joaquin Valley Air Basin Estimated Number of Days Above the PM2.5 and PM10 Standards.....	46
Figure 26: San Joaquin Valley Air Basin Estimated Number of Days Above the 1-Hour and 8-Hour Ozone Standards.....	48
Figure 27: Changes in Percentage of Employment by Industry in Auberry.....	50
Figure 28: Changes in Percentage of Employment by Industry in Big Creek.....	51
Figure 29: Changes in Percentage of Employment by Industry in Shaver Lake.....	51
Figure 30: Changes in Percentage of Employment by Industry on Cold Springs Rancheria.....	53
Figure 31: Changes in Percentage of Employment by Industry on Big Sandy Rancheria.....	53
Figure 32: Number of Visitors to the Local National Forest Service Stations.....	55
Figure 33: Permits Issued at the High Sierra Ranger District Office.....	56

<b>Figure 34: Permits Issued and Calls Received at the Eastwood Visitor Center, Sierra National Forest.....</b>	<b>57</b>
<b>Figure 35: Permits Issued at the Dinkey Creek Visitor Center, Sierra National Forest.....</b>	<b>58</b>
<b>Figure 36: Permits Issued at the High Sierra Visitor Information Station, Sierra National Forest.....</b>	<b>58</b>
<b>Figure 37: Map of Contract Awards by Bidder Zip Code for the Sierra National Forest between January 1, 2009 and January 1, 2014.....</b>	<b>60</b>
<b>Figure 38: Map of Contract Value by Bidder Zip Code for the Sierra National Forest between January 1, 2009 and January 1, 2014.....</b>	<b>61</b>

## **List of Tables**

<b>Table 1. Indicators Selected for Measurement.....</b>	<b>21</b>
<b>Table 2. Data Sources by Measurement.....</b>	<b>22</b>
<b>Table 3. Definition of Community Capacity Indicators.....</b>	<b>36</b>
<b>Table 4. Expert Panel Assessment of Capitals and Capacity.....</b>	<b>36</b>
<b>Table 5: Changes in Percentage of Employment by Industry in Terra Bella.....</b>	<b>49</b>
<b>Table 6. Total Number of Contracts and Contract Value on the Sierra National Forest between January 1, 2009 and January 1, 2014.....</b>	<b>59</b>
<b>Table 7. Number and Value of Locally Awarded USFS Contracts between January 1, 2009 and January 1, 2014.....</b>	<b>62</b>
<b>Table 8. Sierra National Forest Contracts and Contract Value, by Contractor Location between January 1, 2009 and January 1, 2014.....</b>	<b>77</b>



## **Executive Summary**

The Dinkey Landscape Restoration Project (DLRP) was funded under the Collaborative Forest Landscape Restoration Act (CFLRA) in 2010 to accelerate restoration treatments on a 154,000-acre landscape that includes public and private land. CFLRA legislation requires that funded projects encompass a triple bottom line focus. In other words, ecological, economic and social goals are jointly addressed, with none prioritized nor pursued to the detriment of the others. The Dinkey Creek Collaborative, which works to build consensus around DLRP proposed actions in partnership with the United States Forest Service (USFS), contracted the Sierra Institute for Community and Environment to conduct an assessment of the social and economic conditions in the communities surrounding the DLRP.

This Executive Summary highlights key points from the two products that the Sierra Institute for Community and Environment developed for this report. The first is the Stakeholder Analysis, which identifies key issues and provides accompanying recommendations for the project area and nearby adjacent rural communities based on data from interviews of people who live or work on and around the Dinkey landscape. Second is a Socioeconomic Assessment that combines quantitative and qualitative measures of community conditions and capacity to describe current social and economic conditions and trends. The assessment also includes a discussion of how the collaborative group can work to improve community conditions and translate this assessment work into a responsive socioeconomic monitoring plan.

### **Stakeholder Analysis**

The Sierra Institute for Community and Environment interviewed 23 key community participants between May 22 and June 28, 2013. Stakeholder perspectives were then developed based on the themes that emerged from that interview data. Subsequently, recommendations based on those themes as well as other findings are included to illustrate how the Dinkey Creek Collaborative, in partnership with the USFS, can work to enhance the socioeconomic benefits associated with landscape restoration treatments. Key findings from the Stakeholder Analysis include:

1. Forest management is critical to ensuring local economic vitality, and a comprehensive approach to forest management is necessary to meeting the needs of all stakeholder groups, including sovereign Native American nations.
2. Increased available timber harvests, accompanied by appropriate monitoring, are important in supporting local infrastructure and represent a critical tenet in meeting ecological, economic, and social goals.
3. Native American involvement in restoration work, including the incorporation of Traditional Ecological Knowledge, may work to enhance non-timber forest products harvests as well as training and employment opportunities for Native American community members.

4. The Dinkey Creek Collaborative and the USFS need to invest in opportunities to enhance local contracting capacity and local capture of landscape restoration contracts.
5. Local employment opportunities are limited, yet capacity exists to conduct landscape restoration work. The Sierra Forest Products mill in Terra Bella is needed to ensure the economic viability of forest treatments and a competitive bid process.
6. Previous collaborative success, namely the Dinkey South and North projects, provide “models” upon which the group can utilize to enhance the efficacy of their ecological restoration and socioeconomic development efforts.
7. Water shortages were identified as an important issue and could impede future development opportunities. There is a need to integrate available and future science into an adaptive management strategy for landscape restoration, natural resource management, and monitoring.

### **Socioeconomic Assessment**

The social and economic conditions of the rural communities surrounding the Sierra National Forest are described in this report based on data from numerous primary and secondary sources. The data highlight the challenges and opportunities faced by the Dinkey Creek Collaborative and the Forest Service for improving socioeconomic outcomes associated with Dinkey landscape work. In each of the communities there is demonstrated capacity and accumulated capital – financial, human, social, cultural, and physical – that may be leveraged to enhance socioeconomic conditions. Key findings from the assessment include:

- Communities local to the Dinkey landscape include Auberry, Big Creek, Shaver Lake, Prather, Tollhouse, Lakeshore, Big Sandy Rancheria, Cold Springs Rancheria, and Terra Bella.
- Inclusion of Terra Bella challenges traditional thinking about the definition of “local” because of its two-hour drive distance from the Dinkey landscape. It is included because Sierra Forest Products located in Terra Bella is critical infrastructure for Dinkey landscape restoration work.
- Recent closing of a local school, Auberry Elementary, is evidence of a larger challenge faced by the rural communities adjacent to the Sierra National Forest. Communities appear to be struggling to attract and retain young families, in part, due to the limited availability of living wage jobs.
- Local capture of Sierra National Forest timber and service contracts for a five-year period between January 2009 and January 2014 is 48.5% of available contracts and 41.3% of the value of all contracts. Increasing the value of contracts awarded to local firms from its current level to 75% will result in an almost \$1.5 million

increase in investment in communities adjacent to the Sierra National Forest. This total would be higher if multiplier effects were included.

- Key local contractors and infrastructure identified in this report – Sierra Forest Products, Auberry Forest Products, and Messer Logging, among other small locally based independent contractors – play an important role in capturing economic benefits of landscape restoration work and ensuring those benefits are retained by local communities.
- Residents of local Native American communities, Cold Springs Rancheria and Big Sandy Rancheria, indicated a desire to become more engaged in ecological restoration work through the development of crews to restore the Dinkey landscape.
- Burning, as a cultural practice to improve hunting grounds and increase the prevalence of preferred plant species, has been historically important in the Sierra National Forest. Local Native American communities maintain Traditional Ecological Knowledge about these practices and the historic relationship of fire with the ecosystem.
- Engaging recreationists and seasonal homeowners, particularly in Shaver Lake, Big Creek, and Lakeshore, will help to identify ways to enhance socioeconomic benefits associated with tourism in the Dinkey area.
- Biomass utilization and local ownership of a processing facility are critical in achieving triple bottom line outcomes. Investments in infrastructure and human capital help are needed to catalyze future capacity to conduct landscape restoration treatments. The passage of Senate Bill 1122 in California and the permanent reauthorization of stewardship contracting authority by the federal government are two examples of recent policy changes that can be utilized to enhance opportunities to address social, economic, and ecological goals providing the Collaborative and Forest Service take advantage of them.



## **I. Introduction**

The Collaborative Forest Landscape Restoration Program (CFLRP) was established by Congress under Title IV of the Omnibus Public Lands Act of 2009. The purpose of the CFLRP is to “encourage the collaborative, science-based ecosystem restoration of priority forest landscapes” (USFS 2012). Further, CFLRP legislation requires multiparty monitoring to “assess the *positive or negative ecological, social, and economic effects of projects*...for not less than 15 years after project implementation commences” (Title IV, Sec. 4003g4, emphasis added). United States Forest Service (USFS) direction on multiparty monitoring guides collaborative groups to hold meetings with stakeholders to identify common goals for the project, describe indicators to measure change, collect data, analyze the results, and provide access to those results (USFS 2008).

Pursuant to the USFS directive, the Dinkey Landscape Restoration Project (DLRP) proposal defines “benefits” of the restoration strategy in alignment with the CFLRP legislation – tripartite outcomes that work to encompass economic, ecological, and social (or equity) goals. The Dinkey Creek Collaborative, the stakeholder group driving the DLRP, in partnership with the Forest Service, has contracted the Sierra Institute for Community and Environment to assess socioeconomic conditions of local communities associated with the Dinkey CFLR and to help improve understanding of how landscape management in the Dinkey area contributes to socioeconomic development.

This study begins with the findings from a Stakeholder Analysis in which information was collected from key participants in collaborative efforts concerning forest management, the wood products industry, Native American involvement in collaborative efforts, Forest Service contracting, local economic opportunities and community capacity, and the role of previous collaborative projects. The Stakeholder Analysis informed the socioeconomic assessment through the identification of local communities, and helped advanced understanding of key issues that could be further developed through qualitative and quantitative assessment of socioeconomic conditions including demographics, income and poverty, public health, economic vitality, and historic and cultural character. Analysis also included a capacity assessment of the local communities involving assessment of local capital. The purpose of Socioeconomic Assessment is to provide a “snapshot” of current socioeconomic conditions and trends in the DLRP area, to better track and analyze landscape scale restoration associated with the DLRP. The report also briefly explores opportunities and challenges associated with improving socioeconomic conditions in the local area of the Dinkey site.

### ***The local communities of the Dinkey Landscape Restoration Project***

The California communities discussed in this report –Auberry, Big Creek, Shaver Lake, Lakeshore, Tollhouse, Prather, Big Sandy Rancheria, Cold Springs Rancheria, and Terra Bella - were determined to be “local” based on the Stakeholder Analysis, associated interviews, community workshops, map and data review, and in consultation with other local experts. These communities are shown on a map below in Figure 1, with the exception of Lakeshore, the Rancherias, and Terra Bella, the latter of which is not included because of its relative distant geographic location.

Figure 1. Map of Communities in the Vicinity of DFLRP



Terra Bella is included in this report because it is home to the Sierra Forest Products mill. Sierra Forest Products is a key purchaser of timber from the Dinkey landscape, helping to ensure that landscape restoration treatments remain economically viable. In short, the presence and involvement of the Sierra Forest Products Mill in Terra Bella is of critical importance yet at a more than two-hour drive away its inclusion challenges conventional wisdom about the geographic proximity of “local” communities that both impact and are affected by management of the Dinkey landscape. In the period between 2009 and 2014, approximately 23% of contracts on the Sierra National Forest were awarded to Sierra Forest Products. The mill is also recognized as key purchaser of forest products from locally-based contractors.

The two closest Native American communities to the DLRP, the sovereign nations of the Big Sandy Rancheria and the Cold Springs Rancheria, are also included in this report. Data is presented for each of the respective local communities with the exception of Tollhouse, Prather, and Lakeshore, which lack available data in large part due to their small populations. Additionally, there is no U.S. Census data available for Big Creek for the year 2000.

The next section of the report, Stakeholder Analysis, outlines the findings from interviews conducted with community members and local experts in the Dinkey Creek area. In total, 23 interviews were conducted and the themes that emerged from the qualitative data shed light on important considerations for the Dinkey Creek Collaborative and its work to achieve socioeconomic goals.

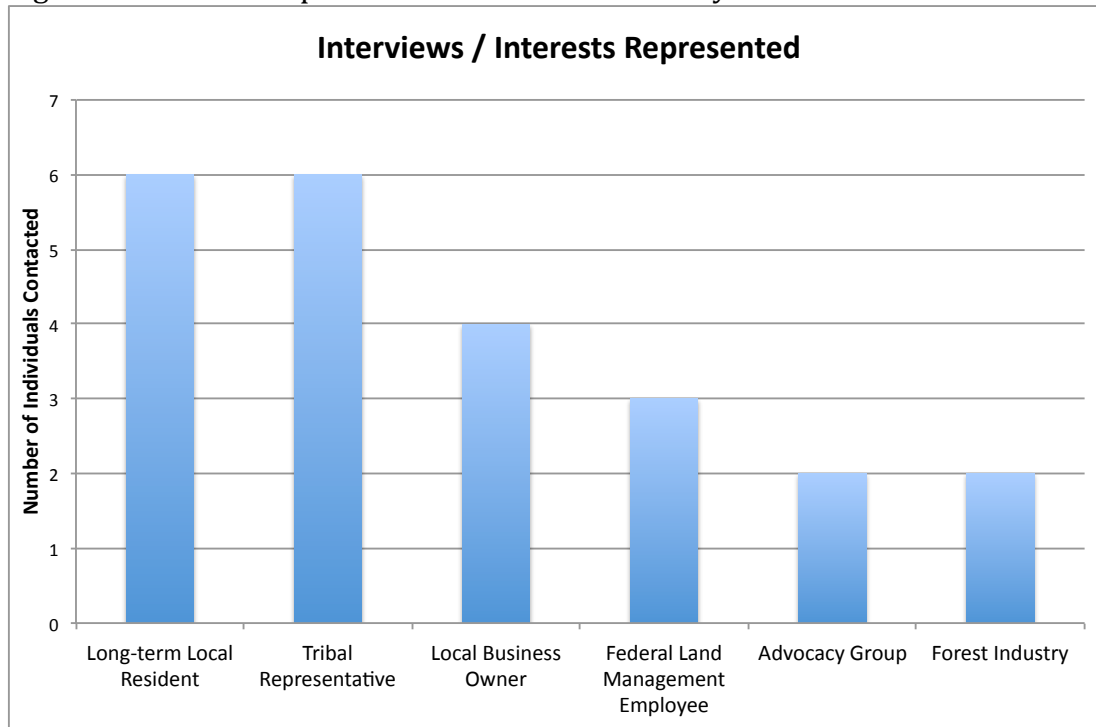
The report follows with the Socioeconomic Assessment, beginning with a brief demographic sketch of each of the respective communities, followed by more in-depth reporting of economic and social data, along with other topical areas of interest. Numerous maps and tables are presented to describe socioeconomic conditions. The report concludes with an identification of key relationships and recommendations about how the Dinkey Creek Collaborative, in partnership with the U.S. Forest Service, can work to improve the socioeconomic conditions in these local communities through landscape scale ecological restoration.

## II. Stakeholder Analysis

The Sierra Institute for Community and Environment conducted two field trips to the Dinkey Creek area for the purpose of conducting in-person, key stakeholder interviews. Field trips were May 22-24 and June 26-28, 2013. A total of 18 semi-structured interviews were conducted, involving 23 participants. Some interviews involved more than one stakeholder, typically resulting from a second joining a primary interviewee (e.g., husband-wife couple) or because others were invited by the primary interviewee to participate (e.g., Tribal members). Several stakeholders were interviewed by phone. Researchers also attended a tribal forum involving 23 participants to share information about the study and identify others to interview. At this meeting, there was a general presentation and discussion of the study that included identification of Native American issues with Dinkey Landscape Restoration Program work.

An advisory group, comprised of members of the Dinkey Creek Collaborative, helped identify key stakeholders to interview. Members of this group prioritized stakeholders, resulting in only those with a “medium” or “high” priority rating being interviewed. Additional stakeholders were identified through a process called “snowball sampling,” in which those interviewed are asked to recommend others to interview. The more an individual is recommended, including whether s/he offers a unique perspective on critical issues, the higher they are prioritized for an interview. Figure 1 shows the number of interviewees by stakeholder group.

Figure 2: Interests Represented in Stakeholder Analysis Interviews



Notes were taken at each interview and reviewed, and key issues and themes synthesized. These are described below and represent a composite of stakeholder perspectives. They

are followed by recommendations for the Dinkey Collaborative to consider. Recommendations are based on the interviews, Dinkey Creek Collaborative documents, and the Sierra Institute's socioeconomic and collaborative research in rural communities.

## **1. Forest Management**

- **Forest management is the key to economic success in the area, not only through forest jobs that are created but also through protection of the area and the recreation economy dependent on the forest.**

All stakeholders agree that active management is critical to keeping the forest healthy and reducing the risk of catastrophic wildfire. Many stressed the need to begin forest thinning immediately to avoid catastrophic wildfire and using these resources before they are lost. Small trees are viewed as a currently underutilized resource as well as a potential threat if left in the woods. There is general agreement that forest management can play an important role in increasing employment in the area.

Increased utilization of biomass could be a good fit for the forest and local economy if done properly. In fact, several respondents urged the pursuit of increased utilization with one stating, "If we could do nothing but biomass here that would be wonderful."

Increased monitoring activities expand the range of forest management employment options. Increased monitoring of harvesting activities by private contractors would result in increased work in the forest and could also lead to development of new partnerships. Use of contractors could help address Forest Service landscape objectives without new federal hiring, would help ensure that precautions are taken for species and ecosystem protection during work activities, and could benefit local workers and businesses.

### *Recommendations:*

- 1.1 *Explore previously undeveloped possibilities for forest management and fuels reduction, including, but not limited to biomass utilization.*
- 1.2 *Reduce the risk of catastrophic wildfire through active thinning.*
- 1.3 *Create jobs through the utilization of forest products.*
- **A more comprehensive approach to forest management is needed.**

Numerous stakeholders made clear that development of an active forest management plan for the Dinkey area should take into account the health of the forest ecosystem, as opposed to focusing on a few species. Although one of the major goals of the Dinkey Creek CFLRP is to protect species like the California fisher (*Martes pennanti*) and California spotted owl (*Strix occidentalis occidentalis*), focusing narrowly on these species may be detrimental to the larger ecosystem. It was repeatedly expressed that species of special interest would benefit from improvement in forest health achieved through active management. Stakeholders expressing this opinion generally believed that it is more important to reduce the risk of catastrophic wildfire that destroys habitat than it is to avoid treatment in order to not disturb one species among many.

Similarly, many stakeholders believed that comprehensive and active forest management should include decisions that increase utilization of a wide variety of natural resources found in the Dinkey Creek area. This includes the perspective of ranchers that graze their livestock on federal land, loggers that bid for timber harvest, and Native Americans that gather non-timber forest products. These different stakeholder groups all feel that it is important to incorporate best-practices, and that various resource utilization activities can play complementary roles in reaching forest management objectives.

***Recommendation:***

- 1.4 *Manage species of special concern through an ecosystem perspective that seeks to improve habitat in general.* Critical habitat improvement would result from an ecosystem management approach, with the goal of improving overall ecosystem vitality benefiting all species. Improvement of the entire forest landscape will increase access to higher quality natural resources.

**2. A Viable Wood Products Industry is Vital to Forest Management**

Forest Service staff, industry representatives, and private parties all indicated that the a mill infrastructure including more than one mill and/or one company is critical to maintaining management options on the Dinkey Creek landscape.

The presence of mill infrastructure in the region helps maintains bid competition in the timber industry, and decreases the likelihood that one company will secure unilateral advantage in the bid process. This helps the Forest Service and private landowners secure more dollars for their resources.

Forest management cannot occur without the support of private industry, and private industry relies on access to timber resources.

***Recommendations:***

- 2.1 *Work to ensure that local/regional mills maintain access to timber resources, are able to procure needed volumes, and remain viable.* Investigating ways to improve and expand access to timber harvests is critical to ensuring mills are able to stay in business.
  - 2.2 *To the extent feasible, ensure that bidding processes are competitive, and that no single company is able to secure advantage to the extent that the viability of another is threatened.*
  - 2.3 *Explore ways to link stewardship contracts and/or other mechanisms that produce timber in ways that ensure industry/company viability.*
- **Available timber harvest needs to be maintained and, provided it is consistent with environmental objectives and monitoring, increased.**

Restrictions to timber harvest in the region challenge the viability of the timber industry. Critical habitat areas, limited operating periods, and the establishment of National Monuments have all contributed to reduced access and harvests.

There are companies that are willing and able to harvest timber on the Sierra National Forest. These companies view increased access to previously unavailable areas favorably, even if this means that they are subject to increased monitoring.



The Dinkey CFLRP is a leader in wildlife monitoring, with the goal of protecting species such as the Pacific fisher and California spotted owl. Many stakeholders felt this monitoring should be coupled with an increase in allowable timber harvest to support local economies. They felt monitoring can contribute to improved understanding of effects of expanded harvest in previously unavailable timber stands, and contribute to adaptive management decision-making that would protect species and reduce fire threat.

Increasing access to restricted areas could further the interests of private industry as well as reduce the threat of catastrophic wildfire and contribute to restoring land; monitoring can help ensure that habitat for sensitive species is maintained. Revenue garnered through expanded access could be reinvested into forest management and restoration activities.

***Recommendations:***

- *2.4 Adaptively expand access into areas that were previously unavailable for harvest in order to increase timber production only if accompanied by comprehensive monitoring that will advance understanding of ecological impacts.*
- *2.5 Identify monitoring outcomes or “thresholds” to inform management activities, including those that halt ongoing work as well as those that allow work to continue and/or be expanded.* In this way, monitoring directly is tightly linked to access, harvests, and adaptive management.

**3. Native American Involvement in Dinkey Creek Work**

Harvest of traditional non-timber products, whether for use as food or other purposes, plays a significant role in the lives of Native Americans in the Dinkey Creek area. Access to these resources remains important, and a number of Native Americans made clear that the health and availability of certain plant species of cultural significance, such as oak species, are linked to ecosystem vitality and forest management.

• **Forest management and use of controlled burns may negatively affect traditional Native American non-timber harvest products.**

Acorn harvest, for example, historically important to local Tribes’ diet and culture, has been reduced in recent years by controlled burns managed by the Forest Service.

***Recommendations:***

- *3.1 The Dinkey Creek CFLRP and Forest Service should increase outreach work with local Tribes to advance understanding and improve the availability of traditional wild harvest foods such as acorns and other culturally significant plants, and ensure preservation of culturally important sites.* In addition to traditional information dissemination strategies such as public meetings and letters, the Forest Service and the Dinkey Creek group should employ more diverse outreach and engagement strategies.
- *3.2 Tribal groups should engage and have members directly involved in Dinky Collaborative work.*



- 3.3 *Native American concerns need to be understood before controlled burns are approved and implemented.*

- **Incorporation of Native Tribal knowledge, known as Traditional Ecological Knowledge, can improve land management and ecological outcomes.**

“Cultural burns” are practiced among Native Americans on private land to improve ecosystem vitality and restore water tables and ecosystems to conditions that existed before aggressive wildfire control measures were implemented. Many stakeholders—not just Native Americans—view re-introduction of fire on the land as a necessary part of good forest management. Practicing what is called Traditional Environmental Knowledge (TEK), Native Americans can contribute to controlled burn scheduling, placement, intensity, and management. Additional consultation and collaboration with Tribal consultants and monitors could contribute to improved conditions for important Native plants and ecosystem vitality and help address tribal concerns.

Cultural burns are labor intensive, involving techniques designed to produce low-intensity burns to remove unwanted biomass and promote the growth of desirable species. Incorporating cultural burns into Forest Service land management will provide employment opportunities and contribute to improved health of forest ecosystems.

***Recommendations:***

- 3.4 *Increase the use of “cultural” fire to achieve ecologically sound landscape outcomes and increase Tribal engagement.*
- 3.5 *Utilize local Tribal members with appropriate training as fire managers or technicians, monitors or cultural consultants.* Increased cultural burning on the Dinkey Creek CFLRP will increase labor demands and can increase opportunities for Native Americans to practice TEK.
- 3.6 *Consider additional cultural fire in pilot areas in consultation with or active involvement of Tribes.* The Forest Service should consider additional consultation and activities with the tribes. Hazlett Basin and forestland surrounding the Cold Springs Rancheria were identified as good locations for demonstration sites.

- **The Tribes and the Forest Service have worked effectively before, and Tribes have called for more joint work.**

Tribes have in the past operated fire crews, served as monitors, and acted as cultural consultants for the Forest Service. Tribal representatives reported mostly positive interactions with current Forest Service staff. Tribal representatives continue to pursue various avenues of economic development for members, and want their members to be viewed as a potential workforce based on their experience and familiarity with the Dinkey Creek area.

The types of professional relationships and arrangements that existed in the past could be re-established and strengthened. Additional training in forest management activities could expand employment opportunities for Tribal members. Training and support can include promotion of Tribal wildland fire crews. Some local Tribes have re-established fire crews, and are in search of increasing partnership opportunities and

work for these crews. This could address a concern expressed by multiple stakeholders: limited local fire fighting capacity.

***Recommendation:***

- *3.7 Explore and advance opportunities to employ local Tribal wildland fire fighting crews, and increase training and involvement in other Forest Service forest management activities.* Native crews historically played an important role in natural resource management and are interested in doing so again.

#### **4. Contracting with the Forest Service**

- **Contracting with the Forest Service is considered by many to be difficult, opaque, and in need of improvement.**

Private businesses and other stakeholders in the area expressed frustration with the process involved with securing Forest Service contracts. It was reported that many local businesses do not seek federal contracts due the “lengthy and difficult process,” as well as restrictions that are unclear, some of which reportedly led to complaints of non-compliance by the agency.

Current notification procedures, such as the use of federal websites, limit public awareness of contracts, especially among individuals and businesses with less capacity. Improving the way in which local businesses are notified of Forest Service opportunities and contracts could help improve local contract capture.

Some stakeholders called for increased training opportunities for local contractors to help them better understand how to obtain and manage federal contracts. Others pointed out that training offered in the past did not result in an appreciable increase of local contract capture. Still others felt that additional training focused on Small Business Administration’s 8(a) business development program would be beneficial and could increase the success of local contractors.

***Recommendations:***

- *4.1 The Forest Service contracting procedures need to be made more transparent and accessible to encourage local bidding on work.* Improvements in contract orientation, training, or informational materials are needed.
- *4.2 The Forest Service should do more to improve contractor understanding to help reduce non-compliance issues.* This can also be done through increased training focused on improving contractor understanding and performance.
- *4.3 The Forest Service and the Dinkey Creek Collaborative should consider developing an expanded pool of potential contractors through outreach and capacity building.* The Forest Service and the Dinkey Collaborative will likely serve different roles but should explore ways to work with and increase the number of potential local contractors. Powerful socioeconomic outcomes could result from such work.

- **Contracting with private companies and Enterprise Teams<sup>1</sup> is viewed favorably by the Forest Service.**

Private businesses and government contractors are used by the Forest Service to increase their capacity and accomplish work. Enterprise Teams are able to perform necessary planning and produce reports (e.g., NEPA) and other work when district offices lack time or capacity.

***Recommendation:***

- *4.4 Utilize Enterprise Teams and local contractors when local agency capacity threatens timely completion of needed environmental documentation and projects.* Enterprise Teams should be used judiciously because of their high cost.

- **Stewardship end-result contracts are possible through the Forest Service, and can create longer-term work for contractors and make a positive contribution to the local economy.**

Stewardship end-result contracts offered by the Forest Service can increase the likelihood that local businesses and workers are involved in local forest work. A challenge for the agency is sizing contracts to local contractor capacity, timing work to meet both landscape and social objectives, and structuring contracts to encourage a stewardship ethic. Stewardship end-result contracts should be structured in a way to ensure local contractors are competitive and considered part of the “best value” criteria that are used to award contracts.

Best value contracting, which allows for contracting decisions to be made based on factors other than lowest price—such as recognizing social benefits and cultivating a stewardship ethic, can preference local contractors. Locally captured stewardship contracts are far more likely to improve socioeconomic conditions in communities in the Dinkey Creek area than not.

Another important benefit of stewardship contracts is the ability to retain contractors and crews that are aware of Dinkey Creek CFLRP land management goals, and that readily respond to specific requirements and constraints. Multi-year relationships with local contractors can contribute to more positive outcomes on the land. The benefit of utilizing contractors that were trained to address project goals was one of the important lessons learned from the Dinkey Creek North and South project.<sup>2</sup>

Stewardship contracts were awarded as part of the Dinkey Creek North and South project. Stewardship end-result contracts can prioritize long-term ecosystem outcomes, and be used to more effectively advance adaptive landscape management.

The ability to enact “retention of receipts” authority, which allows for a portion of the sale of forest products to be retained and invested back into the landscape, can help fund other projects that further Dinkey Creek CFLRP goals. It is important, however, to

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<sup>1</sup> Enterprise Teams are drawn from roughly 150 permanent Forest Service employees who are part of “TEAMS Enterprise” who can assist on short notice to assist in a variety of ways with diverse land management projects.

<sup>2</sup> North, Malcolm, ed. 2012. *Managing Sierra Nevada Forests*. U.S. Department of Agriculture, Forest Service, PSW-GTR-237. Albany, California: Pacific Southwest Research Station.

understand that receipts from stewardship contracting do not benefit county roads and schools as standard agency receipts do.

***Recommendations:***

- 4.5 *Establish contractual relationships between the Sierra National Forest and local contractors through the use of small business set aside authorities.* The goal is to encourage local involvement and employment.
  - 4.6 *Use multi-year stewardship end-result contracts to assure contractors a quantity of work over time to encourage investment in equipment, land, and the Dinkey Creek Collaborative.* Retention of receipts authority that is part of stewardship contracts should be used to fund special projects that advance Dinkey Creek CFLRP goals.
  - 4.7 *Utilize Best Value contracting to increase the likelihood of local contractor capture of contracts.*
- **Some stakeholders indicated that commercial Permit holders on Forest Service land are less likely to make improvements to facilities and infrastructure with environmental restrictions, but this issue is at best tenuously linked to the Dinkey CFLRP.**

Some stakeholders reported that commercial permit holders on Forest Service land are less likely to invest time and money in improvements into recreational facilities as a result of federal restrictions. The recent U.S. Fish and Wildlife proposal to list the yellow-legged frog (*Rana muscosa*) as endangered and the Yosemite toad (*Anaxyrus canorus*) as threatened is viewed as threatening to business investment and viability. While an important issue to some, the lack of nexus between outfitting, guiding and permitting on the Dinkey CFLRP suggests this issue, while important, is outside of the scope of this project.

## **5. Local Economy, Employment, and Community Capacity**

- **Recreation and second-home development have failed to stimulate the local economy as hoped.**

As communities like Shaver Lake transitioned away from timber industry hubs they once were, community members looked to recreation to become the basis for the economy. Although recreation remains important, it is perceived among most stakeholders (with some exceptions) that it currently has limited impact on the local economy. Stakeholders pointed out, for example, that many second-home owners shop in Fresno and elsewhere, and do not spend much money in the local area. Owners of local businesses, especially restaurants, have found it difficult to be profitable and stay open. As one long-time resident lamented, the short-term visitors and second home owners “buy an ice cream cone every once in awhile, but not much else.”

Stakeholders generally agreed that economic impacts from recreation and tourism have failed to replace the loss of the timber industry. Similar to recreation, new housing construction, especially with its pre-Great Recession decline, also failed to replace the timber industry.

- **There is a shortage of available employees in the community of Shaver Lake.** Stakeholders reported that the high cost of living, lack of year-round, full time employment opportunities, and increasing cost of commuting has created a labor shortage in the community of Shaver Lake. Local businesses have difficulty finding local workers.

- **Yet there may be a local source of forest labor and equipment.**

Many working, local residents hold part-time, seasonal, or intermittent jobs due to limited year-round, full-time employment opportunities. Some of these workers operate portable mills, or are involved in landscaping, land clearing, or other equipment operation whose skills could be utilized for Dinkey landscape work. While the number of workers with needed skills and equipment is unclear, stakeholders made clear that some would welcome the opportunity to tackle large landscape jobs if they were available. These jobs could incubate small business, and may offer another pathway to achieve forest management goals.

There is considerable potential for advancing forest management goals, improved access and interpretation, and diversified economic opportunities through collaboration between private business and organizations. One example of an innovative collaboration is the relationship between the Amador-Calaveras CFLRP and the Calaveras Healthy Impact Project (CHIPS). CHIPS formed as an independent contractor group that focused on utilizing woody biomass from the Amador-Calaveras CFLRP with the long-term vision of expanding production of wood chips and pellets, poles, etc. In addition to reducing fuels and woody biomass, CHIPS was formed to create needed local forest products jobs. Similar innovative partnerships could be explored as a part of Dinkey Creek CFLRP work.

Public/ private collaborative projects can benefit the Forest Service by alleviating the effects of budget and staffing constraints and, at the same time, achieve land management goals.

***Recommendation:***

- *5.1 Assess the number of workers with forest management skills and equipment, and explore development of small businesses associated with stewardship contracts and other landscape work.*

- **The Terra Bella wood products operation is critical to the Dinkey landscape and a “local” community.**

The Forest Service and Southern California Edison, the major private landowner in the Dinkey landscape, rely on the wood products operation in Terra Bella to help ensure competitive timber bids. The purchase of timber by the Terra Bella mill and a mill to the north helps offset the cost of forest treatments. Without these log purchasers a considerable amount of forest treatment in the Dinkey area would not be possible. This creates an unusual linkage: the success of Dinkey landscape restoration is linked to a mill and a small town over a two-hour drive away, and with exclusively a commodity

connection to the Dinkey landscape. It challenges conventional wisdom about the geographic location of communities affected by landscape management. The Terra Bella mill is reliant on the Dinkey landscape for a significant portion of its timber. And the town of Terra Bella is reliant on the Dinkey landscape because of the importance of mill employment. Having lost almost 5% of its population between 2000 and 2010, some due to the layoff of a shift at the mill in the middle of the decade, Terra Bella, with a population of just over 3000, can ill afford the loss of any more mill jobs, now totaling over 100 jobs.

***Recommendation:***

- 5.2 *Assess and discuss how to ensure a competitive bid environment is maintained, and explore development of a real landscape-mill-community relationship.*

- **Road infrastructure is critical to economic opportunity.**

The presence of a road and the economic activity associated with it can be the lifeblood of a town. Changes to road infrastructure can have dramatic impacts on communities. For example, widening Route 168 to a four-lane road resulted in traffic permanently diverted around the town of Auberry. Coupled with the Great Recession, the decline in traffic was a critical blow to an already struggling economy resulting in the closing of the elementary school. School closure, in turn, contributed to the loss of additional local businesses.

Roads also serve as critical access routes for tourists and for emergency service access, including fighting fires. Several stakeholders indicated that recreation would decline with forest road closure or lack of maintenance on these roads.

- **Community capacity appears in decline; existing volunteer and stewardship organizations should be supported to help maintain and rebuild capacity.**

Community capacity, or the ability of communities to respond to challenges, appears to be in decline across the Dinkey Creek area. Evidenced cited by stakeholders include a decrease in active community organizations, out-migration of young adults, and closure of important public infrastructure, like the Auberry elementary school. Stakeholders also reported volunteer “burnout.” The same people are relied upon to lead community events, and this group has dwindled. The result is fewer community events and activities.

There are local volunteer groups that maintain trails and conduct clean ups on the Dinkey landscape. Stakeholders indicated these groups should be more effectively integrated into planning.

***Recommendations:***

- 5.3 *Involve community groups in Dinkey Creek CFLRP initiatives whenever possible in order to secure benefits for the forest through volunteer labor, increase the validation of groups, and as a way to share Dinkey work.*
- 5.4 *Promote community involvement in Dinkey land stewardship activities to increase the sense of personal responsibility for longer-term stewardship of the*

*area.* Developing a sense of “ownership” can be an important catalyst for mobilizing community support for future Dinkey work.

## **6. Precedent Setting Dinkey Creek North and South Project**

Multiple stakeholders made clear that Dinkey Creek North and South set the stage and created momentum for the Dinkey Creek CFLRP. They felt planning decisions and models developed, as a part of this process should be better incorporated into current Dinkey Collaborative work. They also felt the knowledge and experience of those who participated in the Dinkey Creek North and South process ought to be more effectively integrated into current work. Notable Dinkey Creek North and South recommendations include: active thinning to reduce existing fuel loads in the forest; re-establishment of historic fire return intervals and severity; reduced smoke production from wildfires (because of fuel reduction); protection of Pacific fisher and California spotted owl habitat through carefully monitored fuel reduction treatment; economically efficient project design to treat more acres at less cost; and reducing the spread of noxious weeds.

Previously designed management strategies from Dinkey North/South are informed by the Forest Service General Technical Report 220 from 2009, entitled, “An Ecosystem Management Strategy for Sierran Mixed-Conifer Forest.” Subsequent Forest Service Publications, such as the General Technical Report 237 from 2012, entitled, “Managing Sierra Nevada Forests,” undergird recommendations available to the Dinkey Collaborative.

### ***Recommendations:***

- 6.1 *Previous Dinkey Creek North and South project work should be given greater consideration and more effectively integrated into current collaborative work.*
- 6.2 *The vision, experience, and expertise of former Dinkey Creek North and South members should also be more effectively utilized in future decision-making. This will help save time during the CFLRP process.*
- 6.3 *Bring previously planned Dinkey North/South forest management activities to scale to increase employment opportunities through expanded thinning operations.* Models have already been developed and analyzed, and should be utilized to save time and money.

## **7. Water Shortages May Limit Future Development**

Stakeholders identified that the area’s aquifers have dropped to their lowest levels, especially at lower elevations and below new housing developments. Creeks that once flowed year round now flow intermittently during summer months. Ephemeral streams dry earlier in the year. Water use and rights to use have become increasingly contentious and threaten to make future land use and forest management decisions more contentious. Future management decisions should mitigate negative impacts to available water supply, and where possible, increase aquifer recharge.

### ***Recommendations:***

- 7.1 *Additional monitoring of the relationship between forest, forest treatments, and the hydrologic regime in the Dinkey CFLRP should be explored.* This work will



become increasingly important in the future with climate change to inform decision-makers about pattern and trend. Involvement of the universities, Pacific Southwest Research Station, and other research groups is needed for this work.

- *7.2 Watershed recharge should be made an important element of the Dinkey Creek CFLRP process.* Climate change, development, and other factors may result in more water shortages in the future. Planning should include exploring diverse mitigation measures.

### III. Socioeconomic Assessment

The Sierra Institute for Community and Environment developed a proposed list of indicators based on a review of literature, socioeconomic assessments conducted in other forested landscapes, and its previous work of assessing community well-being in the Sierra. Interviews and meetings conducted as part of the Stakeholder Analysis helped identify key socioeconomic issues and understand the conditions, indicators, and measures that are most relevant and insightful for this assessment.

*Condition* is the state of the social, economic, or ecological system that affects the way in which people live and work, especially with regard to their safety and well-being.

*Indicator* is defined as the more specific categories that work to establish the state or condition of a particular aspect of a community.

A *measure* is the unit used to express the amount, size, or degree of areas of particular interest in the study.

The definitions represent a hierarchy. Community *conditions* are characterized by a set of *indicators* that are then quantified, analyzed, and described using one or more specific *measures*. For example, the community condition of “public health” includes indicators for air quality and access to health insurance. The specific measures then are the number of air quality events beyond a local, state, or national threshold and the percentage of the population carrying health insurance coverage, respectively.

#### ***Overview of selected community conditions and associated data limitations***

The first draft list of indicators identified a host of potential measures that were then vetted through a prioritization process with members of the Dinkey Creek Collaborative and local residents who participated in two community meetings, one held in Clovis, another at Shaver Lake. Respondents were presented with a list of measures and asked to indicate if the measure is “very important,” “less important,” or “not important at all.” The list of measures and indicators included in this report is reflective of the best available science on socioeconomic assessment, the participatory process to determine what and how to measure socioeconomic conditions within the local context, and the available data that can be used to assess priority measures.

The conditions selected for this assessment fall into six general categories or conditions:

- demographics,
- income and poverty,
- public health,
- economic vitality,
- historic and cultural character, and
- community capacity.

The table below outlines the conditions of interest and indicators and measures that assess those conditions.

Table 1. Indicators Selected for Measurement

<b>Conditions</b>	<b>Indicators</b>	<b>Measures</b>
<b>Demographics</b>	Population	Total population
		Population by age groups
		School district enrollment, by grade level
<b>Income and poverty</b>	Income	Per capita wage and salary income
		Median household income
		Personal transfer income
	Poverty	Percent of families below poverty level
		Percent of households receiving public assistance
		Percent of students in Free or Reduced Price Meals (FRPM)
<b>Public health</b>	Access to health care	Percent of population with health care coverage
	Air quality	Frequency of air quality events greater than threshold
	Water availability	Number of low-supply water events
<b>Economic Vitality</b>	Business diversity	Number of business by industry
		Number of businesses by sector or product
	Business health	Annual Retail Sales
		Business turnover
	Labor force	Total employment by industry
		Unemployment Rate
	Recreation	Recreation use at locations
<b>Historic and cultural character</b>	Unique characteristics	Number of inventoried or designated traditional or cultural places
<b>Capacity</b>	Financial capital	
	Human capital	
	Social capital	
	Cultural capital	
	Physical capital	

### ***Data sources***

Indicator data for the Dinkey Landscape Restoration Project are drawn from a variety of sources, outlined below in Table 2. It is important to note that in some cases data are not available, or are not available at an appropriate unit of analysis.

Table 2. Data sources by measurement

<b>Measures</b>	<b>Data Source</b>
Total population	U.S. Census, American Communities Survey
Population by age groups	U.S. Census, American Communities Survey
School district enrollment, by grade level	Primary School District Data, U.S. Census, American Communities Survey
Per capita wage and salary income	U.S. Census, American Communities Survey
Median household income	U.S. Census, American Communities Survey
Personal transfer income	U.S. Census, American Communities Survey
Percent of families below poverty level	U.S. Census, American Communities Survey
Percent of households receiving public assistance	Fresno County Economic Development Corporation, Tulare County Health and Human Services Agency, U.S. Census, American Communities Survey
Percent of students in Free or Reduced Price Meals (FRPM)	Primary School District Data
Percent of population with health care coverage	U.S. Census, American Communities Survey
Frequency of air quality events greater than threshold	California Environmental Protection Agency Air Resources Board
Number of low-supply water events	Data unavailable
Number of business by industry	Data unavailable
Number of businesses by sector or product	Data unavailable
Annual Retail Sales	Data unavailable
Business turnover	Tulare County Health and Human Services Agency
Total employment by industry	U.S. Census, American Communities Survey
Unemployment Rate	CA Employment Development Department (EDD)
Recreation use at locations	USDA Forest Service, Sierra National Forest
Number of inventoried or designated traditional or cultural places	National Register of Historic Places, California Office of Historic Preservation, USDA National Forest Service Heritage Program

In addition to the measures listed above, qualitative community capacity data was collected for this assessment. Qualitative, or non-numerical, descriptive data are particularly useful for measuring some socioeconomic conditions. When gathered and analyzed in a consistent way, for instance by identifying repeated themes when reviewing comments made on surveys, and in interviews and focus groups, these data can reveal important conditions

and stressors affecting communities. If the same questions are asked of a similar population in the future, and the answers collected similarly, responses can be compared to assess trend over time.

One of the most significant challenges for understanding socioeconomic conditions in rural communities is that comprehensive data are not commonly reported for areas with low populations. Regularly collected data are typically available only at the county level and often do not accurately reflect conditions in communities. Little or no secondary socioeconomic data is collected based on the boundaries of the U.S. Forest Service Ranger District or the boundaries of the DLRP project site. Due to data availability, the unit of analysis, or level of data presented, varies and therefore will be clearly identified in the descriptive statistics and analysis throughout this report. For example, data on the number of students that qualify and participate in Free and Reduced Price Meals (FRPM) is available and presented at the individual school level (e.g., elementary, junior high, etc.), while overall school enrollment data is available by grade level, a slightly more fine-grained unit of analysis. In this case, we can say with certainty that the number of students participating in FRPM and how that changes over time and we can document with certainty how the number of students enrolled by grade level has changed over time, but we cannot say how many students by grade level were participating in FRPM. The participation percentage may be relatively consistent across grade levels or it may not, and reflects a limitation of the available data.

The U.S. Census Bureau collects the most comprehensive and often the most reliable demographic and economic data. These data are available at the community level in most cases, but the bulk of these data are collected only every ten years. This report includes data from the 2000 and 2010 U.S. Census as well as the 2012 American Communities Survey (ACS). The ACS was designed by the U.S. Census Bureau to replace its long form as the primary source of data on some social and economic conditions in U.S. communities. The ACS, however, relies on a survey of a relatively small percentage of the population, as opposed to a census of the entire population. Hence, it is an estimate. The statistical reliability of ACS data is affected by the size of the sample and an associated margin of error is available for each of the statistics drawn from the survey. In this report, ACS five-year estimates, from 2008 to 2012, are compared to U.S. Census data from 2000, following from the guidelines provided by the U.S. Census Bureau (ACS 2014). In cases where 2010 U.S. Census data is available, it is preferred and used instead of ACS data.

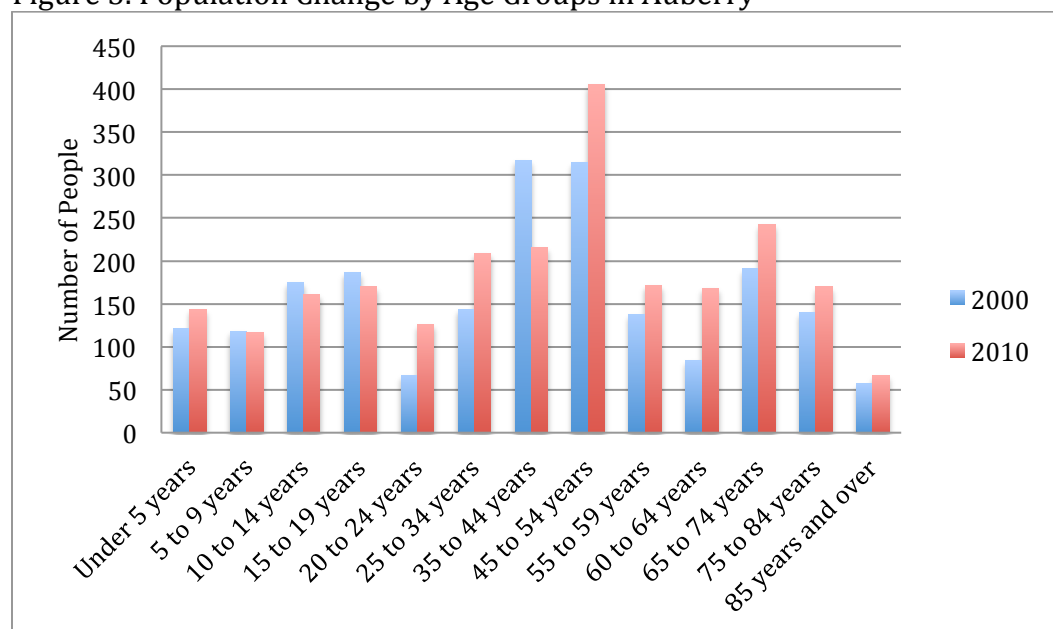
The following section provides a description and brief sketch of changes in the population, school enrollment, and demographics, as well as the results of the capacity measures by community study in order to highlight important and unique characteristics of Auberry, Big Creek, Shaver Lake, Big Sandy and Cold Springs Rancherias, and Terra Bella.

### ***Community Profile: Auberry, CA***

The total population of Auberry, based on 2010 U.S. Census data, is 2,369 residents. The median age of the population is 46 years. Changes in population by age groups over the ten-year period between 2000 and 2010 are shown in the graph below. Auberry has a large cohort of older adults, age 50 and over, and a relatively smaller population of young

families with children. The number of people in Auberry has been relatively consistent in the ten-year period beginning in 2000. Of particular note is the near doubling of the population aged 20 to 24 years during this period and the same rate of growth in the age range of individuals between 60 to 64 years. The number of residents aged 25 to 34 years and 45 to 54 years also increased; these are key age groups in the work force. At the same time, however, there was a 31.9% decrease in the number of individuals aged 35 to 44 years, also a key age group in the work force.

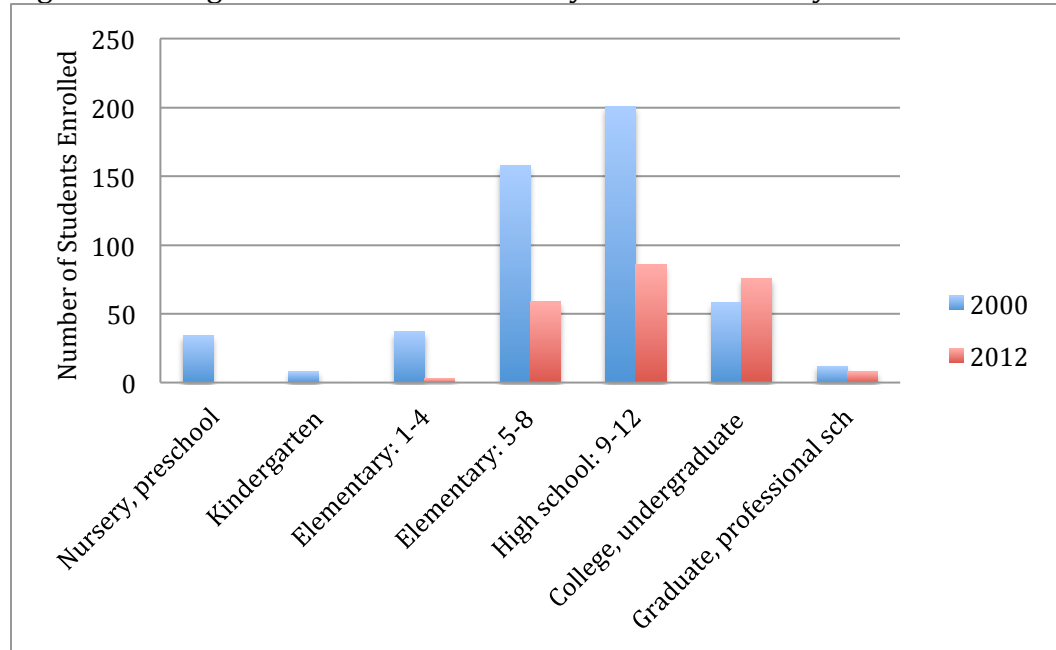
Figure 3. Population Change by Age Groups in Auberry



Source: U.S. Census 2000 and 2010

In 2000, the total number of students enrolled in Kindergarten through twelfth grade (K-12) was 404. By 2012, that number dropped to 148, a decline of nearly two-thirds. The enrollment changes by grade level during this time period are shown in the graph below. The graph shows that nursery, kindergarten, and elementary school students are almost non-existent. According to the ACS, the number of students estimated in elementary school grades one through four is a total of three students. Although there was an increase in those aged 20-34 between 2000 and 2010, that increase in “young family” aged residents was insufficient to keep the local elementary school open. Auberry Elementary of the Sierra Unified School District closed in 2011. The closure of the school and subsequent lack of school-aged children enrolled in Auberry presents an especially important challenge, in part, because schools in rural communities often serve as the “lifeblood” of the community and provide a center of engagement and activity.

Figure 4. Changes in School Enrollment by Grade in Auberry



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

At the time of the U.S. Census in 2000, 86.7% of the total population in Auberry identified as white, 0.4% of the population identified as African American, 5.2% identified as American Indian or Alaska Native, and 7.7% identified as a different race or two or more races. Demographic data from 2012 shows a more homogenized Auberry with 94.7% of the population identifying as white. Each of the non-white census designated categories declined over this time period, most notably the American Indian and Alaska Native population, which fell from 5.2% in 2000 to 0.3% of the total population in 2012.

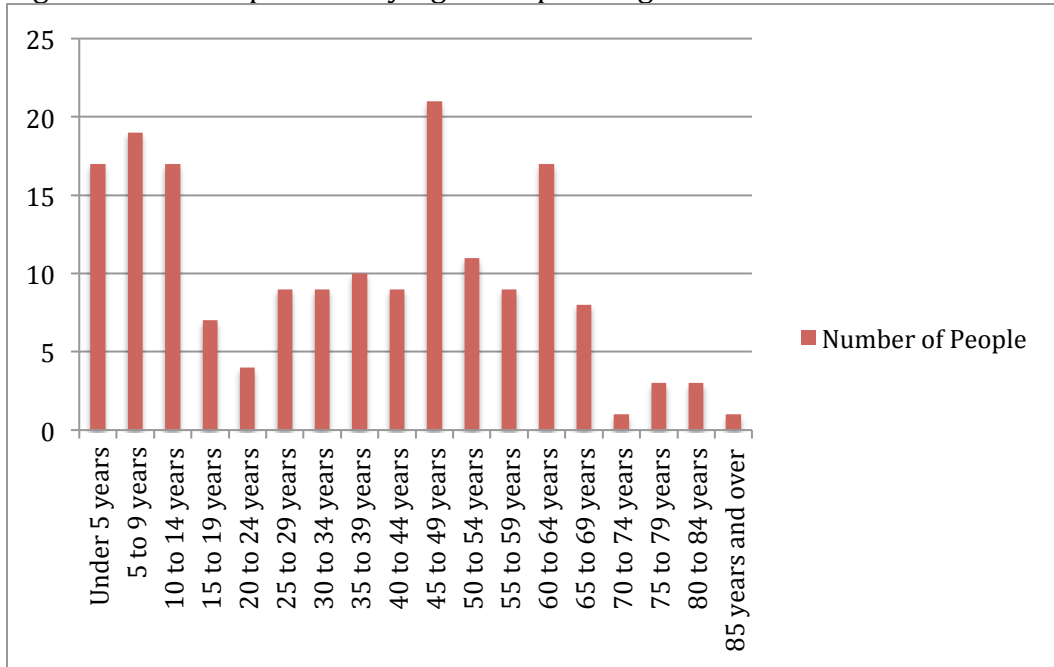
Overall, Auberry represents a rural community that has grown slightly, but where many residents are likely to be aging in place. Again, the population data show that there are more families with grown children and retirement aged people and fewer young families in 2010 than there were in 2000. Even given those changes in population, per capita income remains relatively high at \$35,688. A key challenge for Auberry will be to attract and retain young people, especially families with children, in the community.

### ***Community Profile: Big Creek, CA***

The community of Big Creek had a population of 175 residents with a median age of 37.6 according to the 2010 U.S. Census. The population of Big Creek is composed of 90.4% of those who identify as white and 8.7% of people who identify as American Indian or Alaska Native. The remaining members of Big Creek, 0.9%, identified as some other race. There are a relatively large number of school age children and young families in the community and few individuals aged 70 and over. Data limitations associated with the 2000 U.S. Census prevent comparison with 2010 data and discussion of changes in population and demographics over the ten-year period.



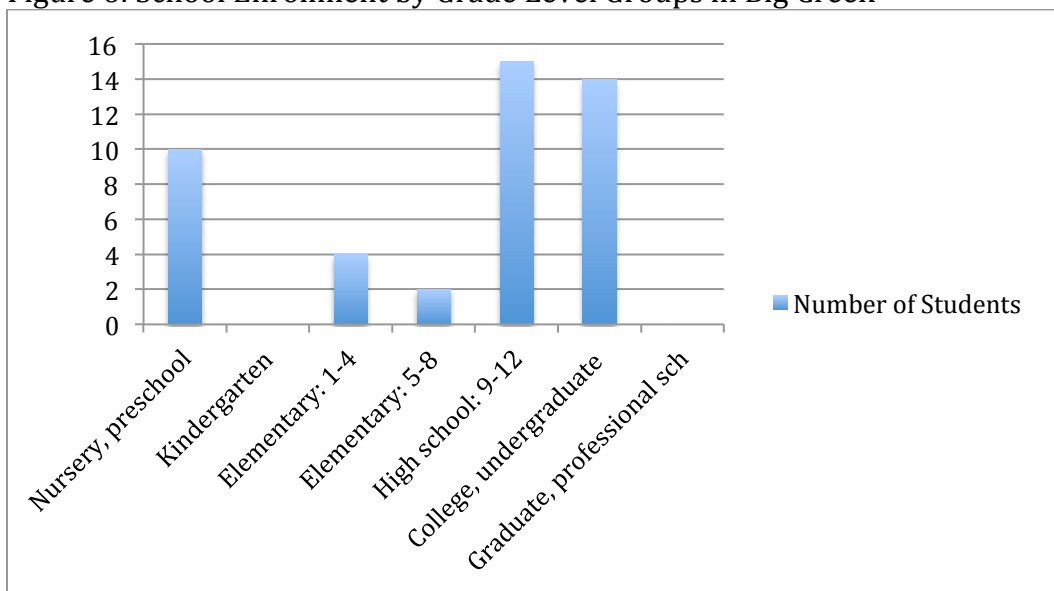
Figure 5: Total Population by Age Groups in Big Creek



Source: U.S. Census 2010

School enrollment data for Big Creek show that there are a total of ten nursery school age children in the community and only six students enrolled in grades K-8. The graph below shows school enrollment by grade level group for Big Creek.

Figure 6: School Enrollment by Grade Level Groups in Big Creek



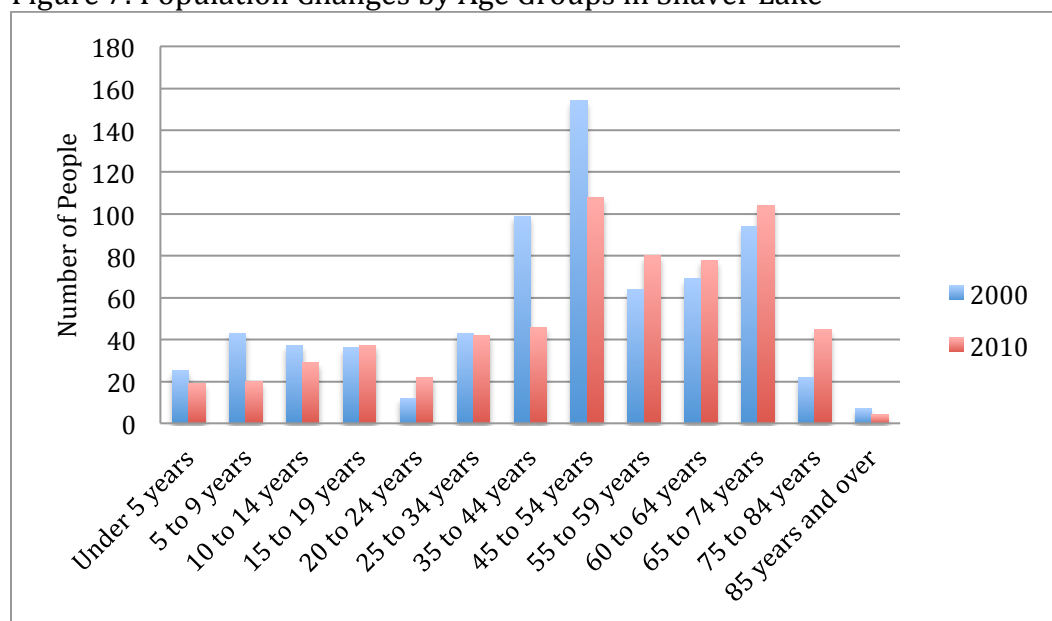
Source: American Communities Survey 2008-2012

Big Creek, although small in total population, has a large number of children aged 14 and younger as a percentage of total population relative to the other communities in the study area. In total, those aged 14 and younger make up more than 30% of the total population of Big Creek. Yet, even given the younger makeup of the community, per capita income is \$35,214, which is relatively high among the communities in the study area.

### ***Community Profile: Shaver Lake, CA***

Between 2000 and 2010 the total population of Shaver Lake shrank slightly from 705 to 634, a decrease of 10.1%. Figure seven below shows growth in the population of individuals age 55 and over, with the exception of those over 84, and a decrease in the population of those aged 35 to 54 years. The community of Shaver Lake has a large cohort of older adults, age 45 and over, representing approximately two-thirds of the total population. There are relatively few young families in the community, and the second smallest age group by total number of people is the 30 to 34 year-olds, which represents only 1.4% of the total population. In 2000, data from Shaver Lake showed that that community was predominately white, with 97.2% of the population identifying as that race. According to the American Communities Survey in 2012, respondents that identified as white increased as a percentage of the total population to 98.8%. No respondents identified as Native American or Alaska Native at that time.

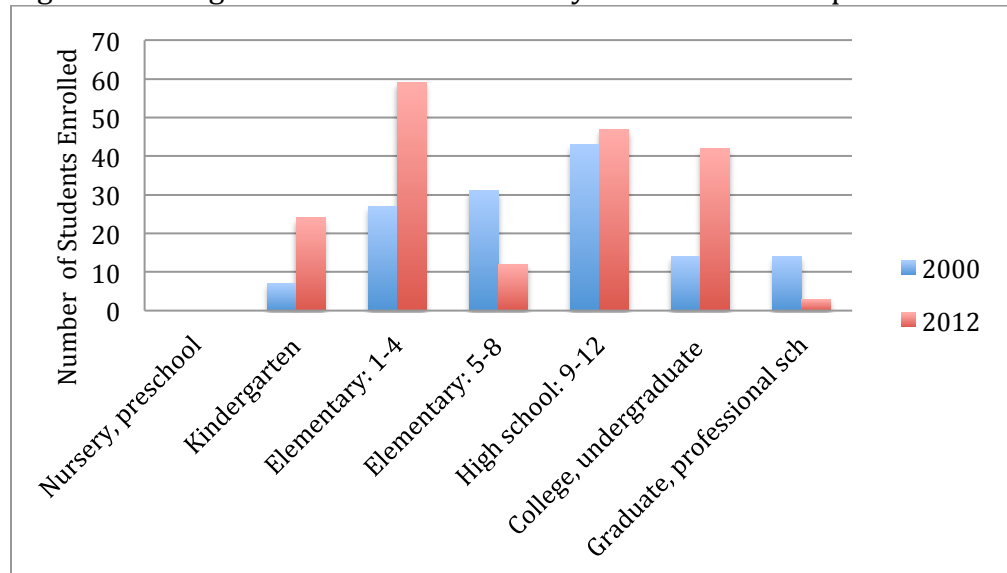
Figure 7: Population Changes by Age Groups in Shaver Lake



Sources: U.S. Census 2000 and 2010

Despite the decreases shown in the overall number of school-aged children in Shaver Lake between 2000 and 2010, the total K-12 enrollment increased slightly from 136 in 2000 to an estimated 142 students in 2012. The growth appears to be largely in grades kindergarten through fourth, with decreases in the number of students enrolled in grades five through eight

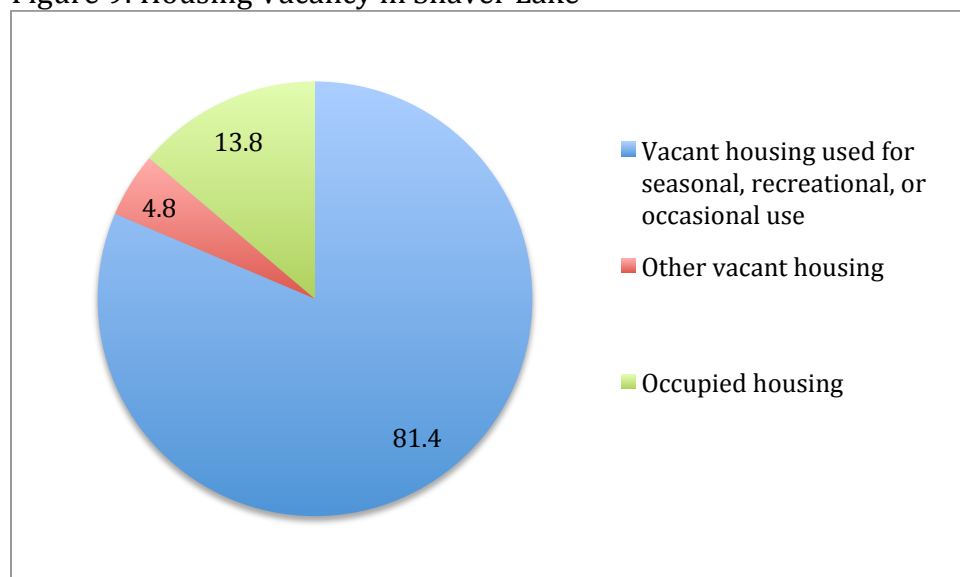
Figure 8: Changes in School Enrollment by Grade Level Groups in Shaver Lake



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

Overall, Shaver Lake maintains a relatively older population and a large stock of seasonal homes. A total of 81% of homes in Shaver Lake are for seasonal, recreational, or occasional use, shown in the figure below. In comparison, Big Creek has only 28.2% of the homes classified as seasonal, recreational, or occasional use homes, and this community has the second highest total in this category for communities included in this report. Shaver Lake, with a high level of natural amenities and a population of retirees and second home owners faces unique challenges and, conversely, is also presented with novel opportunities to enhance the socioeconomic conditions in that community.

Figure 9: Housing Vacancy in Shaver Lake



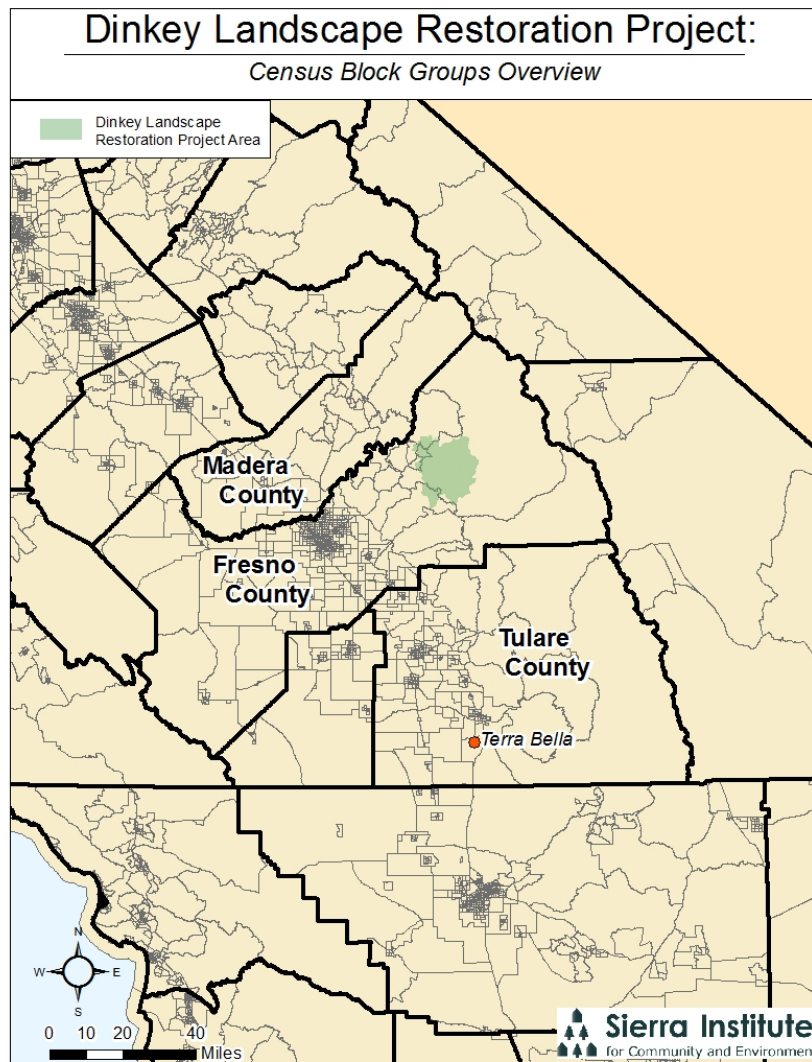
Source: U.S. Census 2010

***Community Profile: Terra Bella, CA***

Terra Bella is the most geographically distant community from the DLRP area, shown below in Figure 2. The community of Terra Bella is included in this report due to the presence of the Sierra Forest Products mill, the largest nearby mill that conducts timber harvests, restoration work, and processes biomass from the Dinkey area. Sierra Forest Products purchases timber from contractors based in communities closer to the DLRP, and directly employs approximately 100 workers, the majority of which live in nearby Porterville.

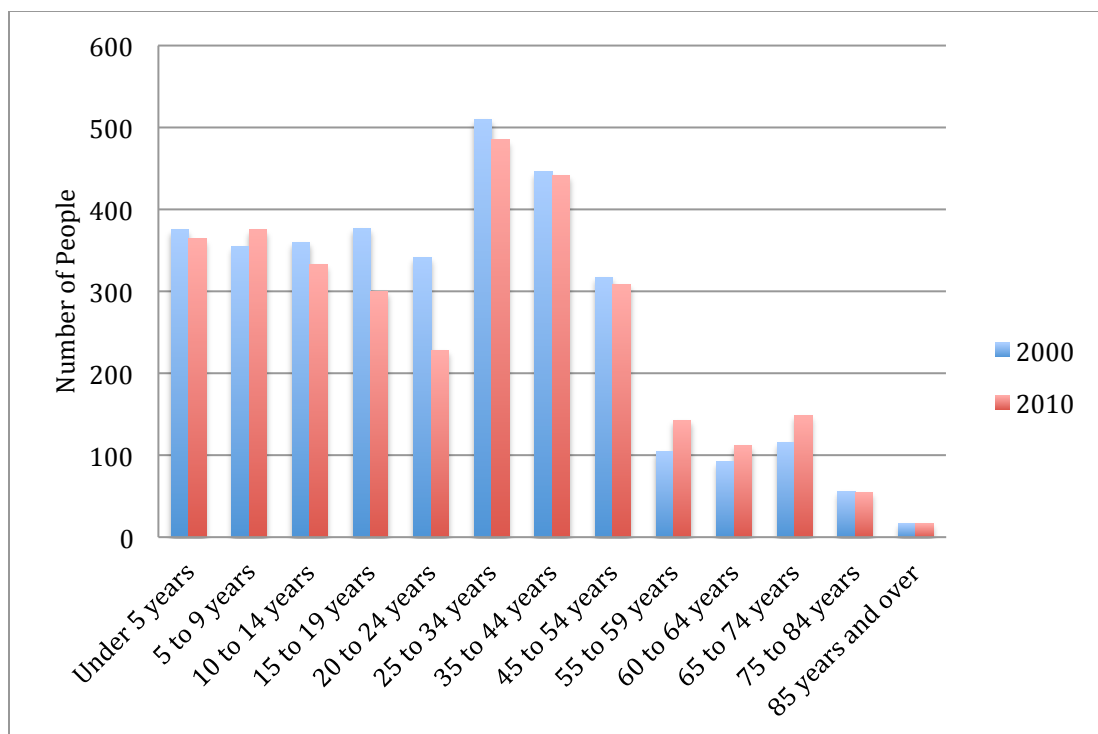
Porterville, California, according to the 2010 Census, has a population of approximately 54,165 persons with a median age of 28.8 years. Approximately 61.9% of the total population is Hispanic or Latino and 28.5% of the population is white. In general, Porterville residents earn more and enjoy more amenities than their Terra Bella counterparts, who live approximately 7.5 miles south.

Figure 10. Map of the Dinkey Site relative to Terra Bella



The population of Terra Bella fell slightly between 2000 and 2010, from 3,466 people to 3,310. In this ten-year period, population levels within the respective age groups have remained relatively consistent with the exception of 15 to 19 year olds and those 20 to 24 years, as shown in the graph below. In 2000, 15 to 19 year olds made up approximately 11% of the total population, but this group decreased to 9% of the total population in 2010. Those 20 to 24 years old composed approximately 9.8% of the total population in 2000, but only 6.8% of the population in 2010.

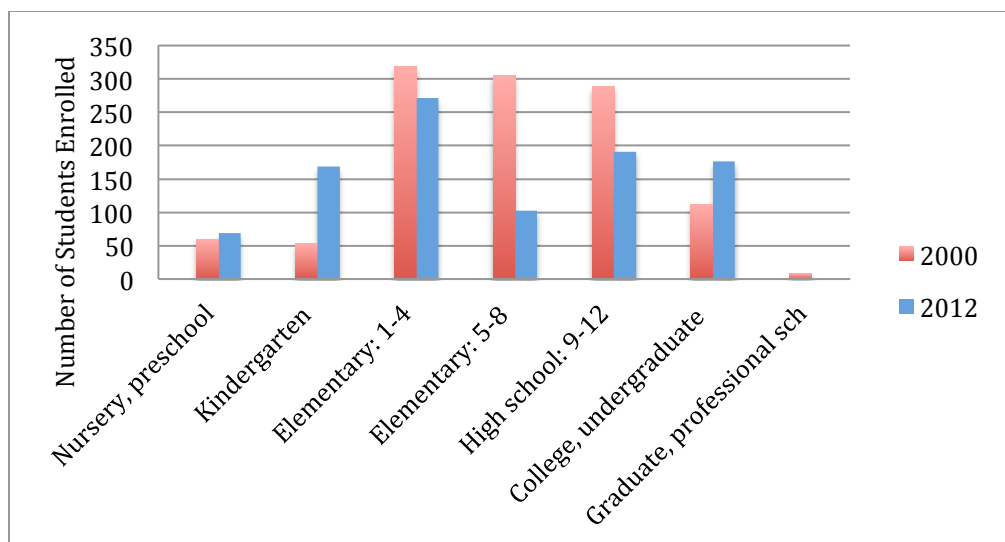
Figure 11: Population Changes by Age Groups in Terra Bella



Source: U.S. Census 2000 and 2010

Despite the decreases in those aged 15 to 24 years, there are still relatively large numbers of school age children and young families in Terra Bella. The total number of K-12 students enrolled in Terra Bella decreased 24.2% between 2000 and 2012, from 968 to 734, shown in Figure 12. Decreases in K-12 enrollment are largely in grades fifth through eighth; there was a nearly 300% loss in the total number of students enrolled over the time period. These declines, however, are accompanied by a more than three-fold increase in the number of students enrolled in Kindergarten, from 54 students to 169 students, and a small increase in the number of students in nursery and preschool. The increased enrollment in nursery, preschool, and Kindergarten are promising signs that the community has been successful at attracting a number of young families since 2000, but the loss associated with fifth through eighth graders warrants further study.

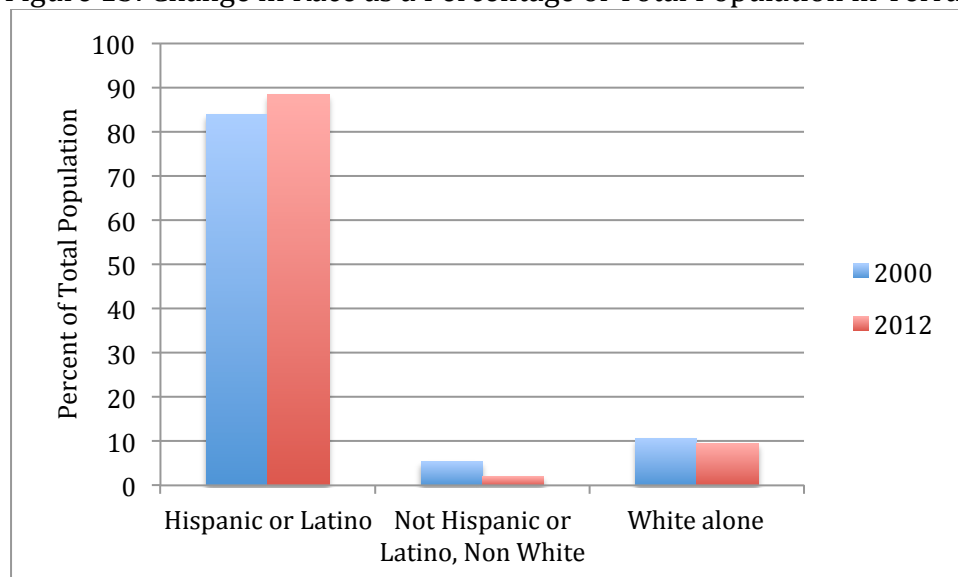
Figure 12: Changes in School Enrollment by Grade Level Groups in Terra Bella



Source: U.S. Census 2000 and American Communities Survey 2008-2012

The figure below shows the change in race as a percentage of the total population in Terra Bella between 2000 and 2012. In 2000, those who identified as Hispanic or Latino made up 84% of the total population and those who identify as white totaled 10.6% of the population. Between 2000 and 2012 there was a 4.4% increase in the overall percentage of the population that identified as Hispanic or Latino as well as a 1.1% decrease in the population that identified as white alone. All other races, including those respondents who identify as two or more races, made up 5.4% of the total population in 2000 and 2.1% in 2012.

Figure 13: Change in Race as a Percentage of Total Population in Terra Bella



Source: U.S. Census 2000, American Communities Survey 2012

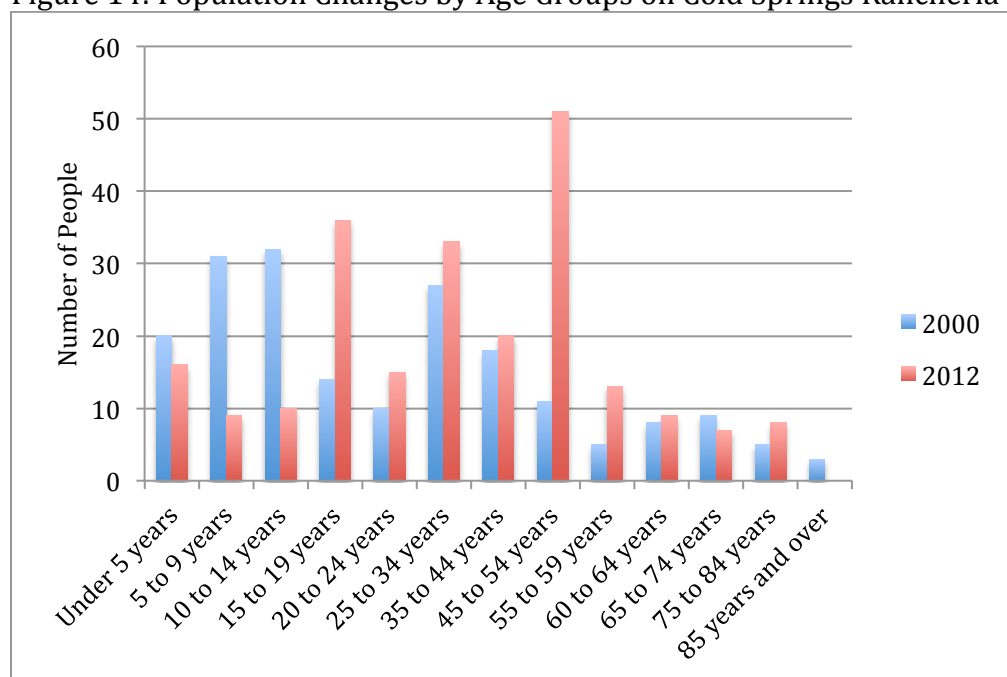
Terra Bella is the youngest and most ethnically diverse community in the local Dinkey area, largely due to the influence of agricultural workers and their families, many of whom are

Hispanic or Latino. Whereas many of the other communities included in this report are challenged to recruit and retain young families, Terra Bella is not. It is a somewhat larger community, but as the data in the next section shows, it faces higher levels of poverty and unemployment. Terra Bella has a per capita income of \$10,252, in part, due to the relatively large number of those below working age. Increasing the local capture of Forest Service contracts for timber and service work supports the Sierra Forest Products Mill, and may be part of a larger community strategy to help to alleviate the adverse effects of poverty and unemployment in the town.

### ***Community Profile: Cold Springs Rancheria***

The total population of the Cold Springs Rancheria increased by 17.6% from 193 people in 2000 to 227 people in 2012. This population increase is primarily concentrated in the 15 to 19 year-old age group and the 45 to 54 year-old age group, which experienced a 257% and 463% increase, respectively. These dramatic increases are accompanied by decreases in the number of children 14 years and under and those over 84. The population changes by age group are shown in Figure 14 below. As a percentage of the total population, 83.3% of all residents of Cold Springs Rancheria are American Indian or Alaska Native, and 12.3% of residents are white in combination with American Indian or Alaska Native. The remaining members of the population identify as either white alone or as some other race.

Figure 14: Population Changes by Age Groups on Cold Springs Rancheria



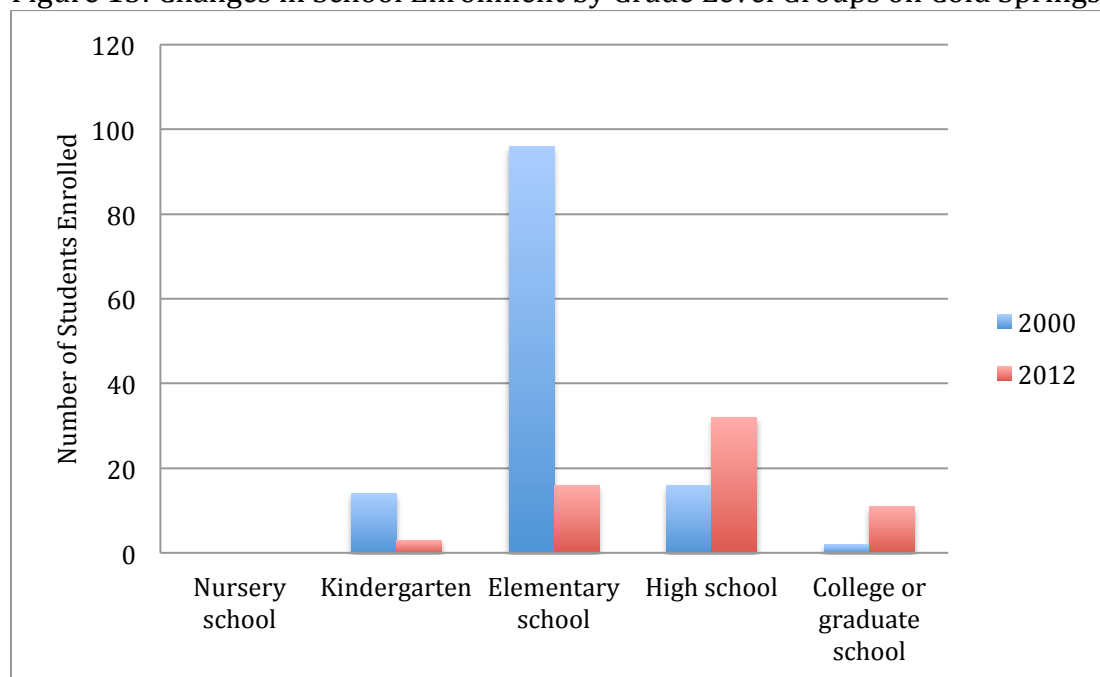
Source: U.S. Census 2000 and American Communities Survey 2008-2012

The total number of students enrolled in K-12 education since 2000 decreased by 59.5% from 126 students to 51 students. Changes in school enrollment by grade level are shown in the figure below. Overall, there were more students in high school grades ninth through twelfth in 2012 than in 2000, however. The number of K-8 students, however, fell dramatically. This is largely due to the closure of Sierra Elementary School, which is where



children from Cold Springs Rancheria attended and is also consistent with the population demographics figure shown above that illustrates the decreases in the number of children aged 14 years and younger in the community. Today, elementary school students from Cold Springs attend Foothill Elementary in Prather, approximately fifteen miles from Tollhouse and where the Rancheria is located. Older students from Cold Springs attend Sierra Junior High School and Sierra High School.

Figure 15: Changes in School Enrollment by Grade Level Groups on Cold Springs Rancheria



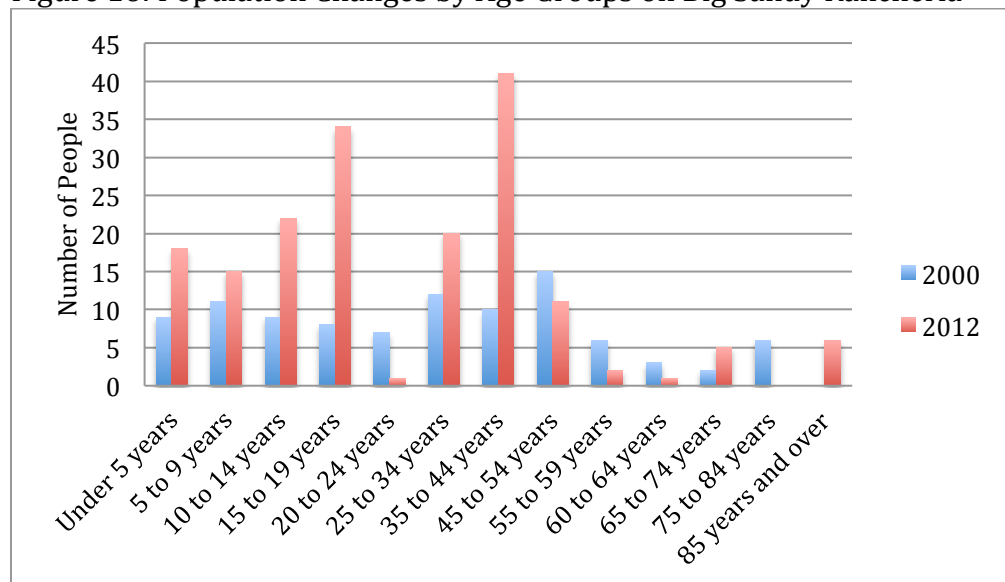
Source: U.S. Census 2000 and American Communities Survey 2008-2012

Growth in the total population of Cold Springs Rancheria is a positive sign. Further, per capita income increased from \$6,194 (\$8,258 in 2012 inflation adjusted dollars) to \$11,179 between 2000 and 2012. Yet, the closure of the local elementary school presents a difficult challenge. In the ten-year period between 2000 and 2010 there was a reduction from 60 to 20 children between the ages of five and fourteen. This decrease, in combination with similar demographic trends in nearby communities, contributed to the closing of Sierra Elementary, which is unlikely to reopen in the near future.

### Community Profile: Big Sandy Rancheria

The total population of the Big Sandy Rancheria increased from 98 to 176 people since 2000, an increase of 79.6%. Population changes by age group on the Rancheria are illustrated in the figure 16 below. There were increases in the total number of people in nearly every population age group of those younger than 44 years, with the exception of the 20 to 24 year old age group. The total number of people between ages 45 and 64 decreased since the year 2000. Approximately 81% of the population of Big Sandy Rancheria identify as American Indian or Alaska Native. There is also a cohort of Asian residents, all of who identify as Chinese, which make up nearly 18% of the total population.

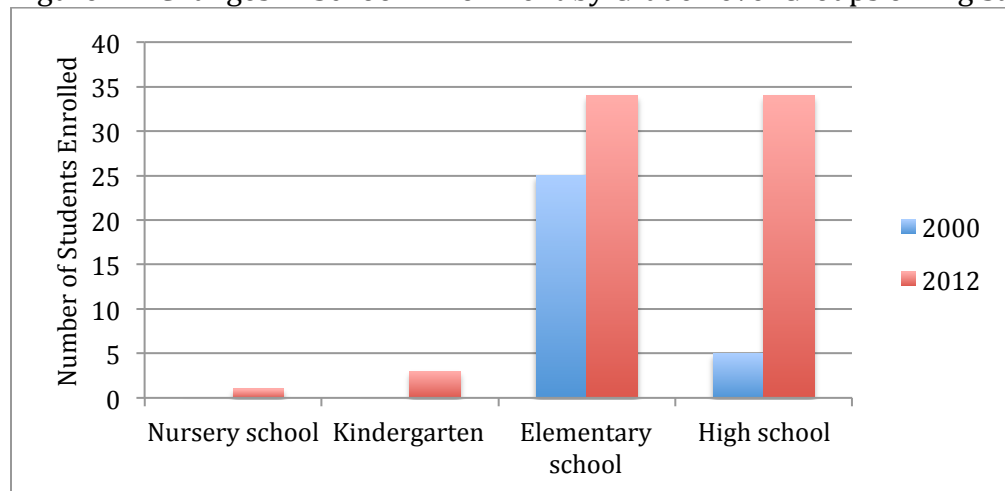
Figure 16: Population Changes by Age Groups on Big Sandy Rancheria



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

School enrollment data show that the total number of students in all school group categories has increased between the 2000 Census and the 2012 American Communities Survey on Big Sandy Rancheria. Figure 17 below shows data for high school students, grades 9 to 12; elementary school students, grades 1 through 8; as well as those enrolled in Kindergarten and nursery or preschool.

Figure 17: Changes in School Enrollment by Grade Level Groups on Big Sandy Rancheria



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

The growth in the total population of the Big Sandy Rancheria is a positive sign, especially the increases in the number of those aged 19 years and younger and those who are considered to be young families, aged 25 to 34 years. Additionally, per capita income on the Rancheria increased between 2000 and 2012 from \$8,119 (\$10,825 in 2012 inflation adjusted dollars) to \$15,174, along with increases in the total population. A total of 36.8%

of the total housing stock in the community was built between 2000 and 2009. These recent developments, however, are not without challenges; school data shows very low enrollment rates for those in nursery school and Kindergarten.

The local Dinkey communities with available data – Auberry, Big Creek, Shaver Lake, Big Sandy and Cold Springs Rancherias, and Terra Bella - maintain unique population and demographic characteristics. These characteristics are important contextual considerations for collaborative stakeholders to monitor as they work to improve socioeconomic conditions in these communities. The next section describes the capacity measures by community data that was collected and analyzed for this report.

### **Capacity Measures by Community**

Community capacity is the ability and willingness of community members to address internal and external stressors of concern. The components of community capacity are critical to the health of a community, yet are rarely examined. Collaborative group members who participated in interviews and public meetings for this project emphasized the importance of capacity-related issues such as public understanding of forest and landscape issues. Community capacity includes the ability and willingness of people and agencies to address issues of concern and work towards common goals – social capital – as well as human, cultural, and financial capital that are all important indicators in the overall level of community capacity. Previous research has shown that community capacity is often critical in determining the success or failure of land management, especially in the collective action setting.

For the purposes of this assessment, community capacity data were collected in two workshops involving experts with knowledge about local communities. The methodology used was first developed and tested in the Sierra Nevada Ecosystem Project (see Doak and Kusel 1996). In this project, expert participants independently and collectively assessed financial, human, social, cultural, and physical capital to determine overall community capacity.

In order to assess the capacity of the communities of interest Sierra Institute staff worked with local residents to examine five indicators, the results of which are shown below in Table 4. The five indicators are reflective of community capacity as it relates to forest landscape restoration. Due to time and funding limitations, community capacity assessments were not conducted in Terra Bella.

Table 3. Definition of Community Capacity Indicators

Indicator	Definition
-----------	------------

Financial	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.
Human	Individuals with knowledge/ability to address conditions and stressors of concern; it is also the experience and capabilities of local residents willingness to use these locally.
Social	The ability and willingness of local residents to work together towards community ends and purposes.
Cultural	The prevalence and strength of shared local bonds and ways of living, and the uniqueness of and identification with this.
Physical	The “hard infrastructure” of a community, such as roads, sewers, schools, as well as the quality of the infrastructure and its ability to meet local needs.

Local residents included experienced and knowledgeable community members along with collaborative group participants who were asked to individually and then collectively rank the status of each form of capital. Rankings captured two important characteristics of capacity including 1) how well it meets existing needs and 2) the overall capacity to address issues of concern in the respective community. Capitals and capacity were ranked using a 1-5 scale, with 1-low; 2-medium low; 3-medium; 4-medium high; and 5-high.

Table 4. Expert Panel Assessment of Capitals and Capacity

	Auberry, Prather, Tollhouse	Watts Valley/Burrough Valley Road	Shaver Lake/ Huntington Lake
Financial capital	2.42	2.86	2.5
Human capital	3.42	2.86	2.5
Social capital	3.21	3.29	3
Cultural capital	3.14	2.83	3
Physical capital	3.14	2.86	2.75
OVERALL CAPACITY	3.36	3.43	2.75

Source: Expert panel groups held May 22-24 and June 26-28, 2014.

#### *Capacity Ratings for Auberry, Prather, Tollhouse*

Workshop participants were clear that this community aggregation does not accurately reflect a single community because the three communities are different, and, critically, residents do not identify themselves as one community. Workshop participants described Auberry as a place where more is going on and with a clear town center, and with a number of folks involved in the community. Prather is spread out along the road, and lost a school recently due to declining population. There is a small logging operation in this community that successfully bid on a Dinkey timber sale contract, along with a trucking company. Tollhouse is located approximately nine miles from both Auberry and Prather. Residents must travel out of town to secure basic services.

#### *Capacity Ratings for Watts Valley and Burrough Valley Road*

Similarly, there is no strong center in this area, and few local jobs. The area is largely a bedroom community for many residents: they live in the area but drive down the hill for their work and other needs, without getting involved locally. Programs for children were characterized as declining. There are abandoned homes in the dispersed rural area. The Cold Springs Indian Rancheria is located in this area but it is spread out and residents are less well off.

#### *Capacity Ratings for Shaver Lake and Huntington Lake*

There is strength and active resident involvement in a number of groups. Huntington Lake area has a number of resorts and camps. The Shaver Lake Chamber closed in 2012 and has subsequently been replaced by the Shaver Lake Visitors Bureau. Stores and businesses are reportedly struggling; some have closed. The museum group in the Shaver Lake area, on the other hand, is strong. Some 80 people are involved. The part-time residents, however, rarely get involved in the community to the degree that full-time residents do, and there are few residents relative to the number of homes. This is a real challenge in the off-season months and for maintaining a strong core in the community. Residents of Huntington Lake are reportedly closer as a community but most are seasonal residents. The ski area has people passing through, but like many tourists, they buy little locally. It is important to note that Shaver Lake has historically been a vacation community and now supports a retirement community.

### **Community Well-Being: Income and Impoverishment, Education, and Free and Reduced Price Meals, and Public Health**

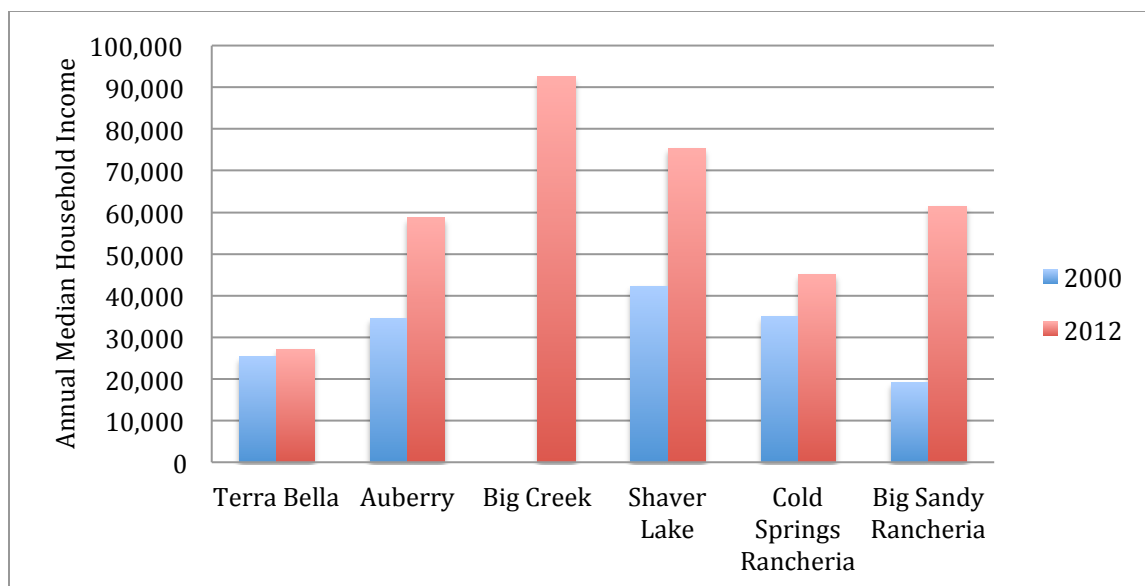
#### **Income and Impoverishment**

This section on Income and impoverishment in the local communities of interest includes measures of median household income, personal transfer income, per capita wage and salary income, percentage of female-headed households, and percentage of households receiving public assistance.

#### *Median Household Income*

The U.S. Census gathers data on the median household incomes for census designated places based on the value of incomes within a household for all individuals aged 15 and over not including the value of any public assistance, interest or dividends, or net rental income. Within the local area of interest, Shaver Lake, Big Creek, and Big Sandy Rancheria are the communities that have median household incomes greater than the median household income in California, which is \$61,400. Figure 18 below shows changes in median income by community between 2000 and 2012.

Figure 18: Changes in Median Household Income by Community



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

Median household income in Terra Bella is \$27,115, an increase from \$25,313 in 2000. In Auberry, the median income was \$34,621 in 2000 and that increased to \$58,659 by 2012. Shaver Lake saw a similar increase in terms of the number of dollars over the time period with a median income of \$42,250 in 2000 to more than \$75,350 in 2012. The median household income in Big Creek is \$92,500, the highest in the area. Interestingly, 64.8% of residents in Big Creek report earnings greater than \$75,000 per year and no residents report earning more than \$200,000 per year. Median household incomes on Cold Springs Rancheria and Big Sandy Rancheria have increased since 2000. On Big Sandy Rancheria, the median income in 2000 was approximately \$19,250 and in 2012 median incomes increased to an estimated \$61,449. Cold Springs Rancheria began with a significantly higher median household income in 2000 of approximately \$35,000 and that number increased to \$45,104 by 2012.

### *Transfer Income*

Measures of transfer income in this report include Social Security, Supplemental Security Income (SSI), and mean retirement income. Each of these transfer income sources for the communities in the Dinkey local area are described below.

Social Security is available to most retirees; according to the Social Security Administration nine out of ten individuals over 65 years of age receive benefits (SSA 2014). Further, among those retirees receiving Social Security income, these benefits represent approximately 38% of total household income. Social Security benefits are calculated based on an individual's lifetime earnings, and the amount a retiree can receive in Social Security payments is capped. In the Dinkey area, Auberry, Big Creek, and Shaver Lake have mean Social Security incomes of \$19,332; \$19,439; and \$19,841 respectively, while Terra Bella has a mean Social Security income of \$13,937.

SSI provides financial assistance to those who are 65 years and older, blind or disabled, or who have little or no income. In Terra Bella, 9.7% of households receive SSI, an increase from 8.6% in 2000. Approximately 4.5% of households in Shaver Lake receive SSI, an increase from 1.3% in 2000. No households in Auberry or Big Creek are reported to receive SSI benefits.

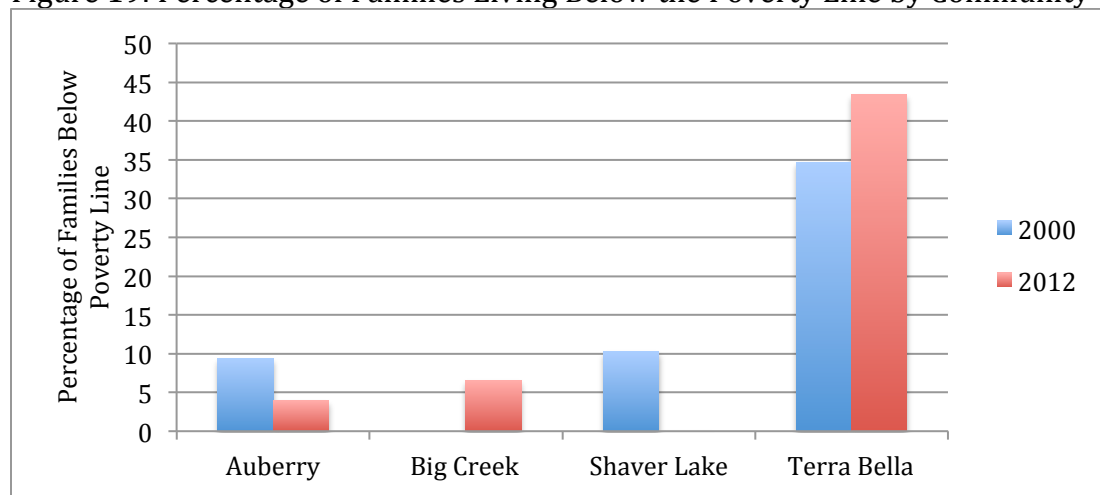
Mean retirement income of those households that received non-Social Security retirement income in the four communities ranged from \$12,022 in Terra Bella to \$50,073 in Shaver Lake. Mean retirement income in Auberry and Big Creek is \$24,311 and \$24,341 respectively. The retirement income data available show increases in the mean retirement incomes of retirees in both Auberry and Shaver Lake between 2000 and 2012. Terra Bella, however, saw a decrease in mean retirement income from \$18,636 to \$12,022 during the same time period.

The transfer income data show that the elderly in Shaver Lake are well off relative to the retirees in other communities. Terra Bella on the other hand has a lower mean Social Security income, higher percentage of households receiving SSI benefits, and the lowest non-Social Security retirement income of the four local communities in which data are available. Elderly in Auberry and Big Creek receive roughly equal transfer income totals.

### *Impoverishment*

Families living below the poverty line, as a percentage of the total number of families, are shown in the figure below.

Figure 19: Percentage of Families Living Below the Poverty Line by Community



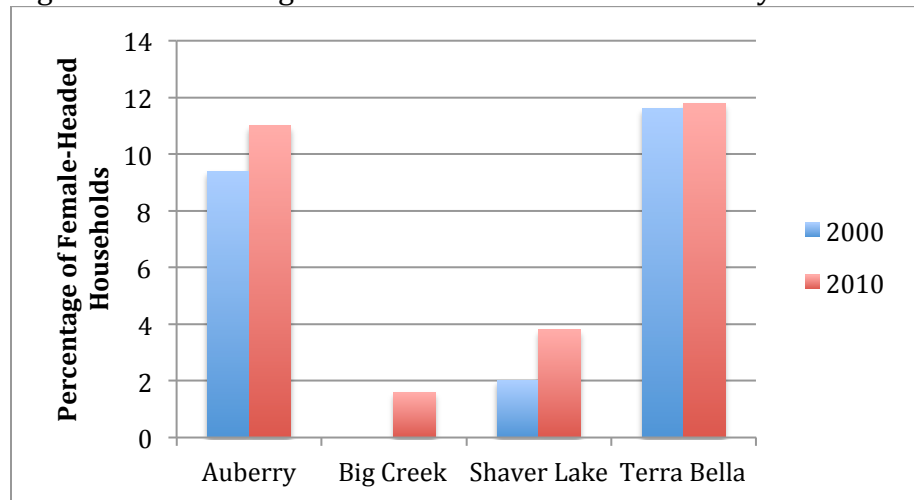
Sources: U.S. Census 2000 and American Communities Survey 2008-2012

In Terra Bella, 34.7% of families were living below the poverty level in 2000, and this total increased to 43.4% in 2012. The percentage of families below the poverty line in Auberry declined from 9.4% in 2000 to 4% in 2012. Approximately 6.6% of families live below the poverty line in Big Creek while none of the families in Shaver Lake live below the poverty line. This is a significant improvement from 2000, when Shaver Lake had 10.3% of families

below poverty level. Data on the percentage of families living below the poverty line are not available for Cold Springs and Big Sandy Rancherias.

The percentage of female-headed households is an important measure of impoverishment and can be indicative, in part, of the socioeconomic well being of a community. Female-headed households generally earn less and experience higher rates of both poverty and social assistance need. In the State of California, 11.5% of all families live below the poverty line, while 26.6% of female-headed households live below the poverty line.

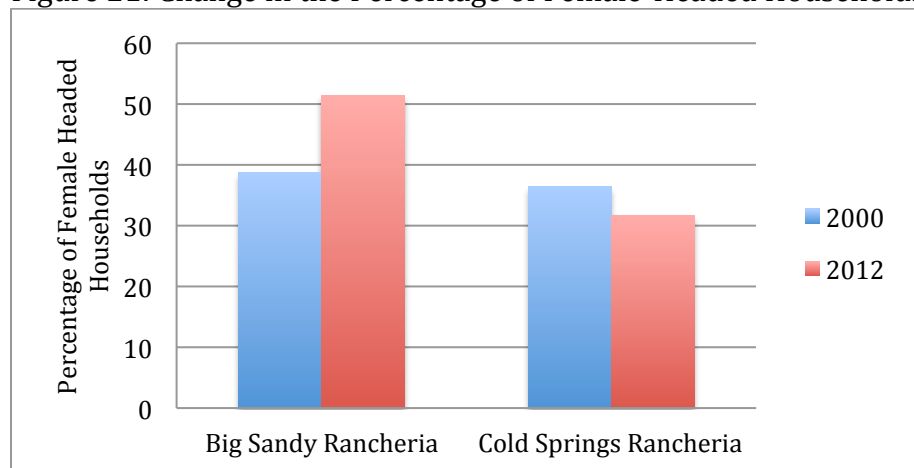
Figure 20: Percentage of Female-Headed Households by Community in 2000 and 2010



Sources: U.S. Census 2000 and 2010

The percentage of female-headed households in Terra Bella increased slightly to 11.8% in 2010 from 11.6% in 2000. In Auberry, 9.4% of all households were female-headed in 2000, which then increased to 11% in 2010. Shaver Lake also saw a slight increase to 3.8% from 2% in 2000. In Big Creek, 1.6% of all households are female-headed.

Figure 21: Change in the Percentage of Female-Headed Households on the Rancherias



Sources: U.S. Census 2000 and American Communities Survey 2008-2012



Female-headed household data for Cold Springs and Big Sandy Rancherias are presented separately because data are not available for 2010. As a percentage of all households, the percentage of female-headed households in Cold Springs decreased between the 2000 Census and the 2012 American Communities Survey. During that same time period, the percentage of female-headed households in Big Sandy Rancheria increased from 38.7% to more than 51%.

#### *Cash Public Assistance and Supplemental Nutrition Assistance*

In California, the primary welfare programs that support families and individuals in need include California Work Opportunity and Responsibility to Kids (CalWORKs), the Cash Assistance Program for Immigrants (CAPI), Kin-Gap, and General Assistance and Relief (CDSS 2007).

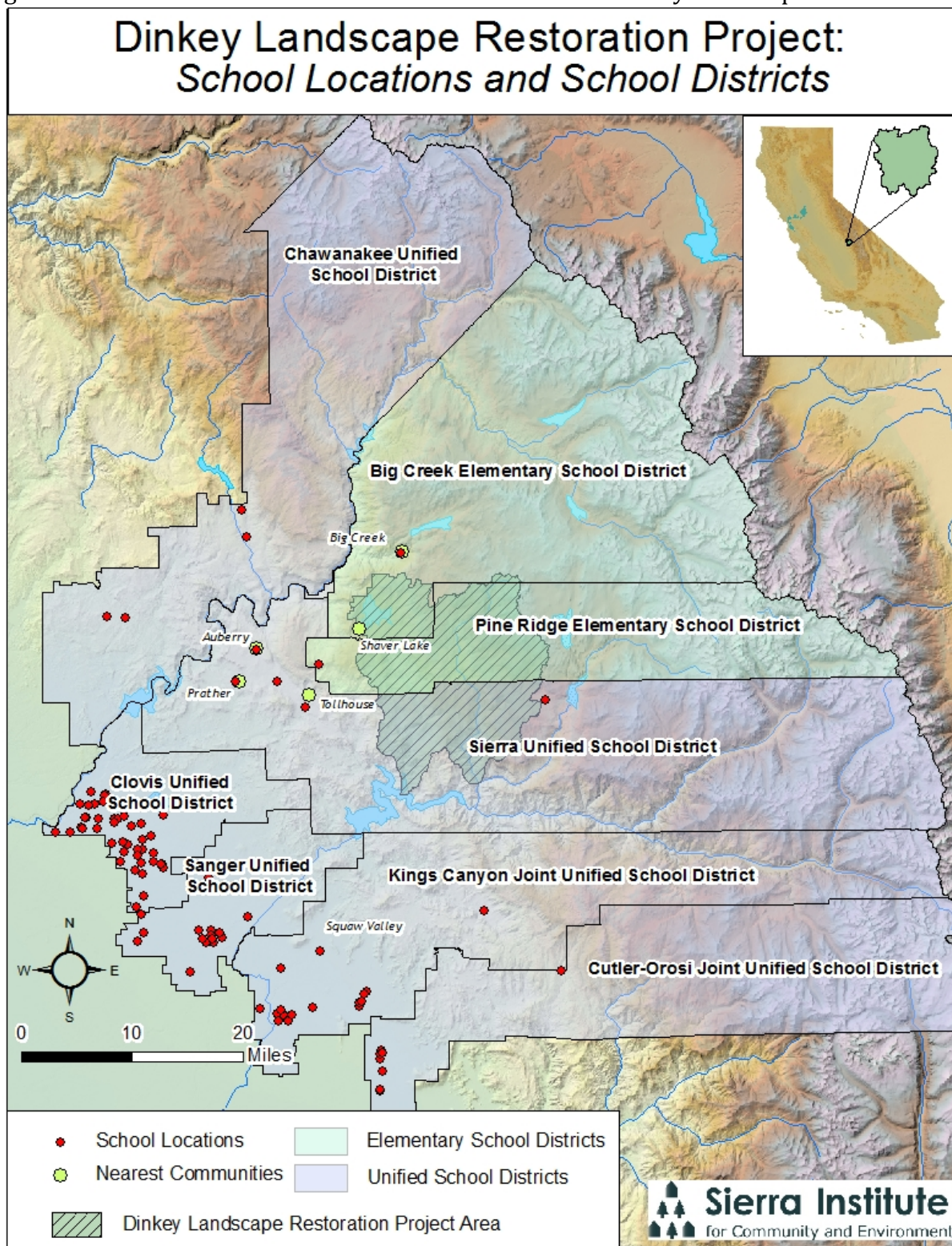
The percentage of households receiving public cash assistance in Terra Bella is 13.7% in 2012, an increase from 11.8% in 2000. Auberry experienced a decrease in households receiving cash public assistance from 3.4% in 2000 to less than 1% in 2012. Similarly, the percentage of total households receiving cash assistance in Shaver Lake decreased from 2.8% to 0%. In Big Creek, no one reported receiving cash public assistance. Cold Springs Rancheria saw a decrease in the percentage of households receiving cash public assistance from 15.2% 2000 to 7% of all households in 2012. During that same time period, the percentage of households receiving cash public assistance on Big Sandy Rancheria increased from 18.6% to 27%.

The Supplemental Nutrition Assistance Program (SNAP) administered by the U.S. Department of Agriculture and known at a statewide level as CalFresh, formerly called Food Stamps, provides support to households for food. In Auberry and Shaver Lake, 1.9% and 6.7% of households receive nutrition assistance, respectively. No families in Big Creek receive nutrition assistance. In Terra Bella, 35.1% of families receive nutrition assistance, which is high, both relative to the state average of 7.2%, and in comparison to other local communities. Income and poverty data show that 81.1% of households in Big Sandy Rancheria and 49.1% of households in Cold Springs Rancheria receive nutrition assistance.

#### **Education and Free and Reduced Price Meals**

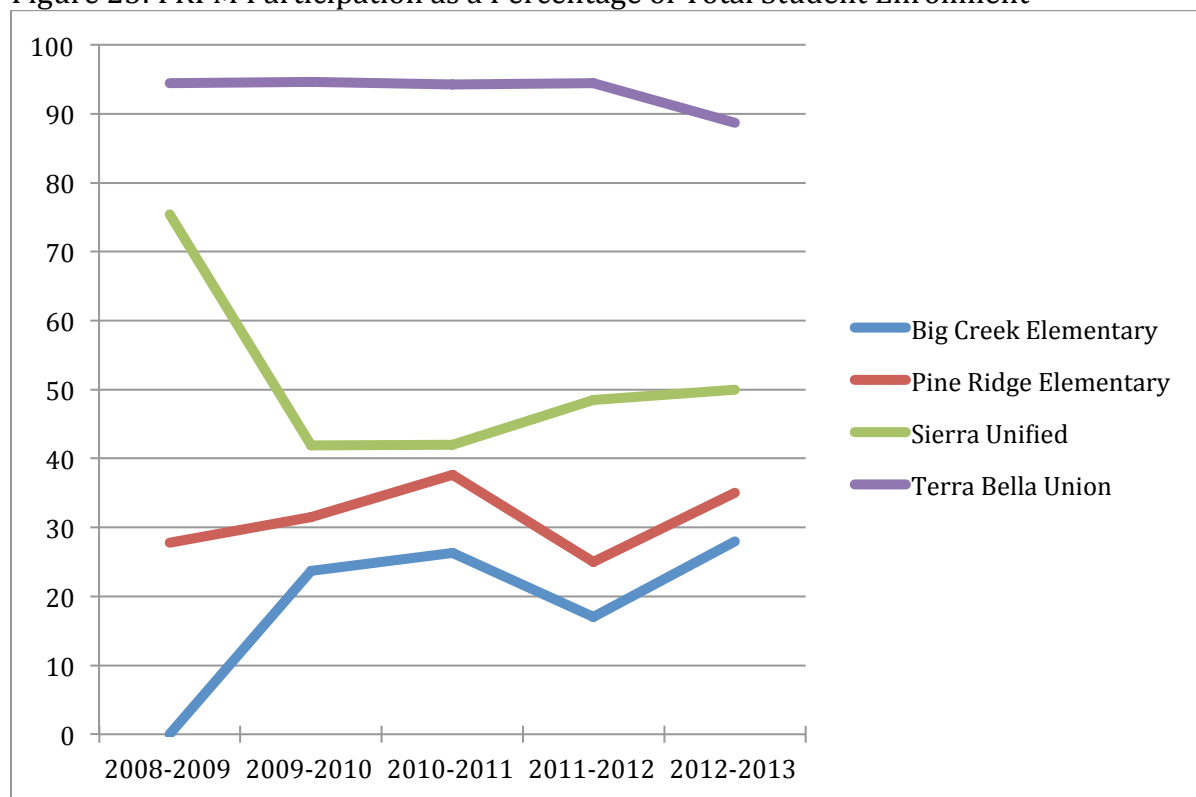
School districts that serve the local communities of the Dinkey Forest Landscape Restoration Project (DFLRP) area include Sierra Unified School District, Big Creek Elementary School District, Pine Ridge Elementary School District, and the Terra Bella Union School District. A map of the school districts is shown on the following page.

Figure 22: School Locations and School Districts near the Dinkey Landscape



School enrollment data combined with information on student participation in the Free and Reduced-Price Meals (FRPM) Program, commonly known as the National School Lunch Program, together provide an important indicator for understanding socioeconomic conditions affecting families with children. FRPM provides free lunches to children attending public schools whose families have incomes of no more than 130% of poverty level (\$30,615 for a family of four during the 2013-2014 school year) or a reduced-priced meal for children from households with incomes between 130-180% of poverty level. Children from families with a parent laid off from work and foster children also qualify for free and reduced-priced meals. The latter group typically makes up a very small percentage of the FRPM total. The graph below depicts enrollment in FRPM by school district between 2008-2009 and 2012-2013 school years. The following section outlines participation in FRPM as well as school district enrollment trends over time.

Figure 23: FRPM Participation as a Percentage of Total Student Enrollment



Sources: Big Creek Elementary, Pine Ridge Elementary, Sierra Unified, and Terra Bella Union School Districts

The Sierra Unified School District, based in Prather, is in the foothills of the Sierra Nevada Mountains approximately 35 miles north and east of Fresno. In the 2012-2013 school year, the District served approximately 1,150 K-12 students across a nearly 3,000 square mile region. Three schools in the Sierra Unified School District were either closed or repurposed to accommodate different school grades between the 2010-2011 and the 2011-2012 school years. Auberry Elementary was closed and both Sierra Elementary and Foothill Middle School were repurposed.

Auberry Elementary, which served grades K-3, experienced both a precipitous decline in enrollment as well as a significant increase in the number of students qualifying for FRMP before its closure in 2011. In the 2008-2009 school year, enrollment was just under 300 students, but fell to 194 the following year, a drop of roughly 35%. During that same time period, FRPM enrollment increased from 36.1% to 54.1%. Sierra Elementary saw a significant decline in enrollment over the three-year period ending in the 2010-2011 school year. The number of K-4 students dropped by 45%, from 288 students in 2008-2009 to 158 in 2010-2011. During this time, the percentage of students enrolled in FRPM changed little, ranging between 46.2% and 48.9%. Foothill Middle School included students in grade levels fourth through tenth. In the 2008-2009 school year enrollment totaled 401 students, then jumped to 573 a year later, and fell slightly to 544 in 2010-2011.

In the 2012 to 2013 school year, the Sierra Unified School District included two elementary schools, Foothill and Pole Corral, as well as the Sierra Junior-Senior High School. Foothill Elementary, located in Prather, serves K-6 students. The total enrollment in the 2011-2012 school year was 619 and enrollment decreased slightly in the following year to 608. Approximately 55% of students attending Foothill Elementary received Free and Reduced Priced Meals in the 2011-2012 and 2012-2013 school years. Pole Corral Elementary is the smallest school in the District. Student enrollment has ranged from as few as one student in school year beginning in fall 2009 to seven students in the 2012-2013 school year. The Sierra Junior and Senior High School enrolls students between grades seven to twelfth, and in the 2011-2012 school year there were 592 students attending. The Sierra High School, with students in grades nine through twelve, experienced a decline in enrollment in each year of the three-year period beginning in the 2008-2009 school year. Over the three-year period enrollment has dropped 7.5%.

Big Creek Elementary School District serves students in grades K-8 and is the only school in the district. Big Creek Elementary enrolled 59 students in 2012-2013, which was the highest enrollment of the 2008-2009 to 2012-2013 school years. Students receiving FRPM assistance increased between 2008 and 2013, but remained below 28% of all students, which is the lowest percentage of students in FRPM of the four local school districts.

Pine Ridge Elementary served 92 students in K-8 in 2012-2013 and is the only school in its district. Enrollment has remained relatively consistent over the four-year period beginning in the 2009-2010 school year. Student participation in FRPM as a percentage of total student enrollment is the second lowest of the four local school districts, with approximately 35% of students enrolled in FRPM in the 2012-2013 school year.

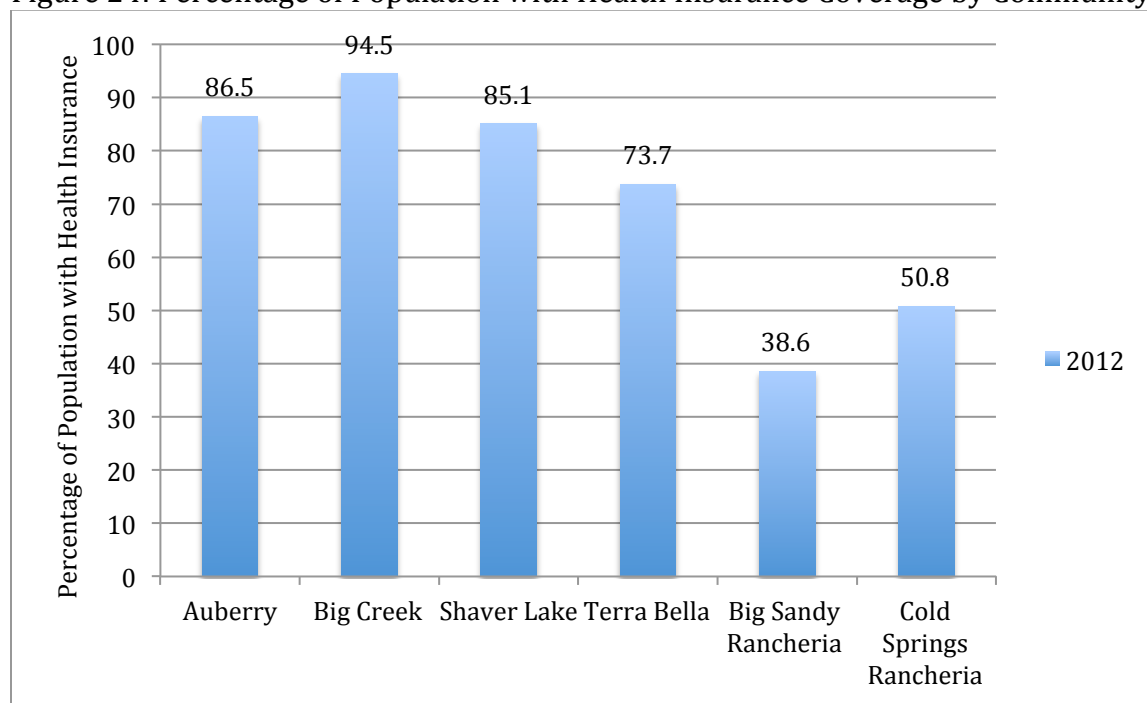
The Terra Bella Union School District includes the Terra Bella Elementary School, which serves grades Kindergarten through fifth, as well as Carl Smith Middle School that serves grades sixth through eighth. The number of students served by the district was 936 in the 2012-2013 school year. Carl Smith Middle School has experienced small shifts in enrollment between 2008 and 2013 with an average enrollment of more than 275 students per year. Terra Bella Elementary maintained relatively stable enrollment between 2008 and 2012 with an average enrollment of approximately 629 students per year. In each respective school year, the percentage of students participating in FRPM at Terra Bella

Elementary ranged from 94.8% to 88.6%. This is indicative of the high unemployment rates and lower socioeconomic status families in Terra Bella relative to other local communities.

### **Public Health**

Excellent information on public health is widely available at the county level, but these data reveal little about communities in the Dinkey Socioeconomic study area. The 2012 American Communities Survey collected health insurance coverage data on the communities of Terra Bella, Auberry, Big Creek, Shaver Lake, and Cold Springs and Big Sandy Rancherias. Access to health insurance is important because coverage is a critical component in ensuring timely medical care. A lack of health insurance is linked to less care overall, worse health outcomes, and can lead to a large financial burden when the uninsured seek emergency care. It is important to note that the Affordable Care Act (ACA) is likely to result in higher levels of coverage, especially among traditionally vulnerable populations. The data presented below were collected prior to the implementation of the ACA and show the percentage of the population that has health insurance coverage.

Figure 24: Percentage of Population with Health Insurance Coverage by Community



Source: American Communities Survey 2008-2012 for the civilian, non-institutionalized population

The income and poverty data presented in the previous section is highly correlated to access to health care coverage. Big Creek, which had the highest median income and lowest levels of participation in social welfare programs, also has the highest levels of health care coverage. Auberry and Shaver Lake, which have similar socioeconomic conditions, despite their unique characteristics, maintain roughly equal levels of coverage. Approximately three out of four Terra Bella residents have health insurance. The Cold Springs and Big Sandy Rancheria, each with less than fifty percent of the population with health care coverage, are likely to see the greatest increases in coverage as a result of the Affordable



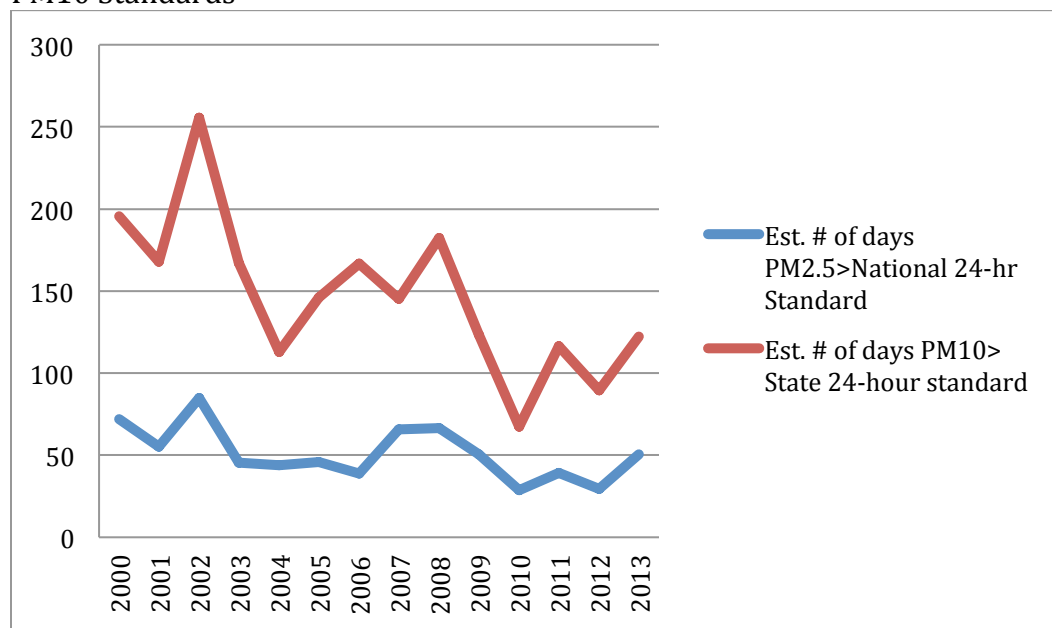
Care Act. Further research is needed to understand if Rancheria residents obtain health care through tribal programs that differ from other health insurance programs.

### *Air Quality*

Fresno and Tulare Counties are part of the larger San Joaquin Valley Air Basin. The California Environmental Protection Agency Air Resources Board (ARB) collects data on the number of air quality events exceeding national and state thresholds established for public health. It should be noted that the air quality data collected by the ARB is only collected at specific locations within the air basin and none of these locations are in the rural communities included in this study.

The first of the two air quality graphs below depicts the estimated number of days that air quality exceeded the national 24-hour PM2.5 standard and the state 24-hour PM10 standard. The national 24-hour PM2.5 standard is 35 micrograms per cubic meter, and the state 24-hour PM10 standard is set at 50 micrograms per cubic meter. According to the California Environmental Protection Agency, exceeding PM10 threshold may be related to an “exceptional event,” which is defined as “events for which the normal planning and regulatory process established by the Clean Air Act are not appropriate,” such as a large wildfire (ARB 2014). Ambient smoke, from even distant wildfires, can have an impact on air quality and public health. Wildfire smoke is often a mixture of small particles, gasses, and water vapor. The particulates can cause irritation of the eyes, nose, and throat and may result in headaches or illnesses such as bronchitis. Children, older adults, and those that suffer from chronic heart and lung disease are at highest risk. The number of days exceeding the threshold is an estimate because sampling occurs only at a minimum of every six days.

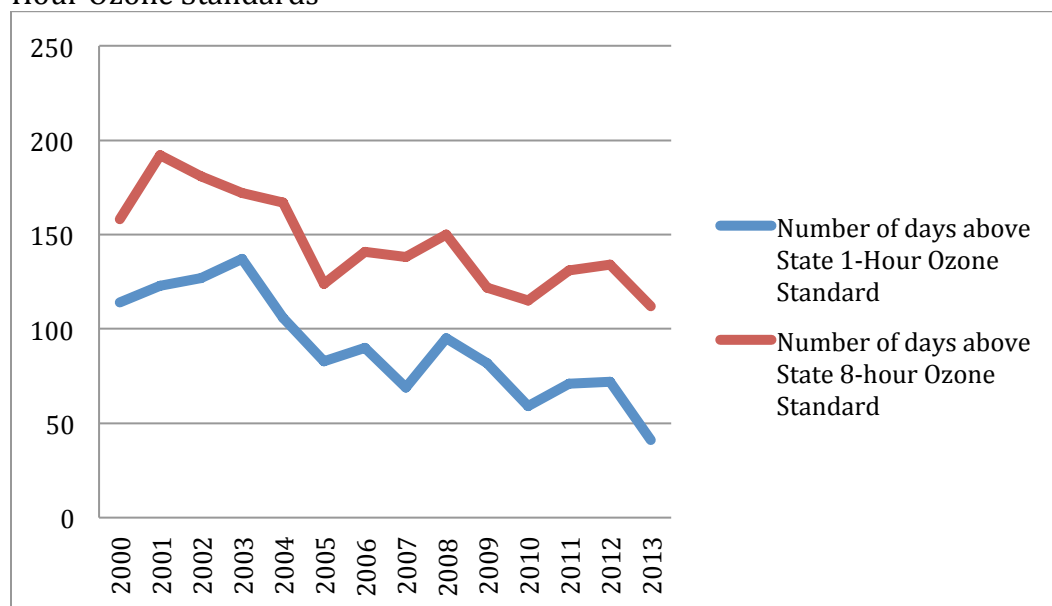
Figure 25: San Joaquin Valley Air Basin Estimated Number of Days Above the PM2.5 and PM10 Standards



Source: California Environmental Protection Agency Air Resources Board

The air quality graph below displays the number of days the state 1-hour standard and state 8-hour standard for ozone exceeded the threshold established for public health. The state 1-hour standard is exceeded if the daily maximum of ozone concentration is above 0.09 parts per million (ppm). The state 8-hour standard is exceeded if the maximum 8-hour average ozone concentration exceeds 0.070 ppm. For both standards, the number of days greater than the given thresholds is indicative of the severity of the ozone problem in the area, but is not necessarily the same as the number of violations of the standard (ARB 2014).

Figure 26: San Joaquin Valley Air Basin Estimated Number of Days Above the 1-Hour and 8-Hour Ozone Standards



Source: California Environmental Protection Agency Air Resources Board

Since the early 2000's there is a generally downward trend in the San Joaquin Valley in the number of days above the 1-hour and 8-hour ozone concentration standards, with the lowest number of days per year above the threshold occurring in 2013. Between 2000 and 2004, the 8-hour average was exceeded an average of 174 days per year. More recently, between 2010 and 2013, the state 8-hour average was exceeded, on average, 123 days per year, a marked decrease from a decade prior. While these data are for the air shed encompassing the study communities and the downward trend in standard exceedence is positive, they are of limited value, especially since sampling may undercount exceedences for wildfire, which can lead to dangerously poor air quality.

### Community Well-Being: Historical and Cultural Character and Economic Vitality

Indicators and measures of economic vitality and historic and cultural character include the number of businesses by industry, number of businesses by sector or product, total employment by industry, annual retail sales, business turnover, unemployment rates, recreation use at locations, and the number of inventoried or designated traditional or

cultural places. Although robust economic and business statistics are available for Fresno and Tulare Counties as a whole, these data say little about the rural communities of interest. Future studies might aim to collect primary economic data locally, perhaps in collaboration with the respective county governments.

This section begins with a description of economic vitality data that is available including unemployment, labor force, and select business data as well as recreation and local use data from the Sierra National Forest with a focus on those sites in the proximity of the DLRP. Then, the section follows with a presentation of the historic and cultural character of the DLRP area.

### **Economic Vitality**

The California Employment Development Department (EDD) estimates that the unemployment rate in the state in May of 2014 was 7.1%. In that same month, unemployment in Auberry was an estimated 8.6%, Shaver Lake was 2.6%, and Terra Bella was 31.6%. Two years prior, the annual average unemployment in 2012 in Auberry was 12.5%, Shaver Lake was 3.9%, and Terra Bella was 39.8% (EDD 2014). Unemployment data alone suggest that these communities are on the path of economic recovery since the 2008 and 2009 economic recession, yet the numbers suggest, particularly for Terra Bella, that socioeconomic challenges persist.

Employment data by sector sheds light on both the types of industries and employment related opportunities present in the vicinity of the rural communities of interest. Community-level data is presented next, followed by graphs that illustrate the percentage of employment by industry for each community. The descriptions highlight the largest employers by industry as a percentage of total employment and any trends in employment over time that shed light on important changes between 2000 and 2012.

Table 5: Changes in Percentage of Employment by Industry in Terra Bella

<b>Percentage of Employment by Industry in Terra Bella</b>	<b>2000</b>	<b>2012</b>
Ag, forest, fishing, and mining	43.9%	54.5%
Construction	2.5%	2.3%
Manufacturing	7.7%	2%
Wholesale trade	7.3%	5.5%
Retail Trade	9%	4.1%
Transportation and warehousing	4.8%	2.9%
Information	0.1%	2.2%
Finance, insurance, real estate	0.5%	2.4%
Professional, scientific, and management	2%	6.5%
Educational services, health care, and social assist	12.5%	7.7%
Arts, entertainment, and recreation and food service	4.1%	3.2%
Other services, except public administration	3.3%	3.6%
Public administration	2.3%	3.1%

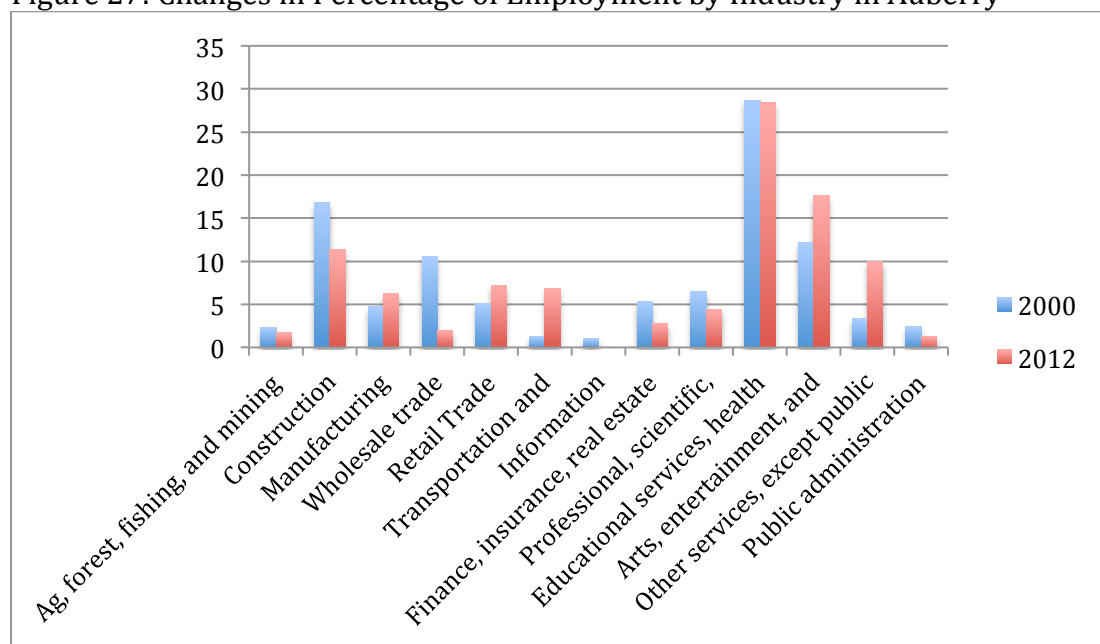
Sources: U.S. Census 2000 and American Communities Survey 2008-2012



As shown in the data presented in the graphic above, Terra Bella is predominately an agricultural community with more than 54% of workers employed in this census designated sector. It should be noted that the Census designated category also includes forestry, fishing, and mining. Interviews with members of the Tulare County Economic Development Corporation made clear, however, that the majority of those employed in this category work in the agricultural sector. The largest single employer in the community is a pistachio processing plant. Wholesale trade; professional, scientific, management, administrative, and waste management; and educational services, health care, and social assistance make up 5.5%, 6.5%, and 7.7% of total employment by industry, respectively. Each of the remaining categories accounted for less than 4.1% of total employment by industry.

Agricultural work is likely to be seasonal, and there are changes in unemployment levels and rates of enrollment in public assistance programs that follow. However, given limitations in the available data, the changes in seasonal employment are difficult to quantify.

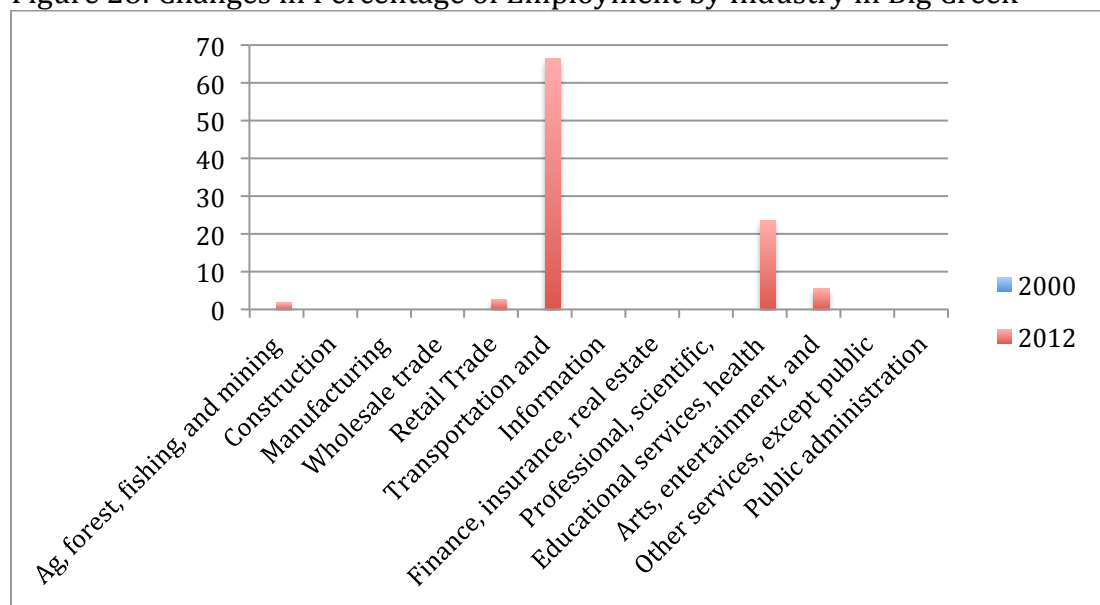
Figure 27: Changes in Percentage of Employment by Industry in Auberry



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

In Auberry, the three largest employment sectors by industry include educational services, health care, and social assistance; arts, entertainment, and recreation, accommodation, and food service; and construction, representing 28.4%, 17.6%, and 11.4% of the total employment by industry.

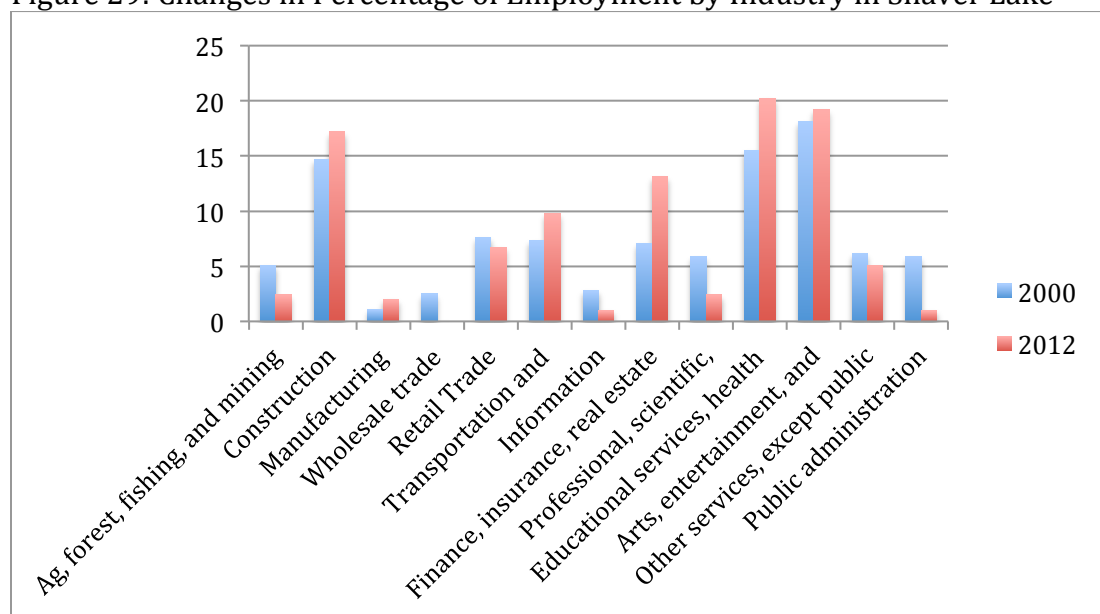
Figure 28: Changes in Percentage of Employment by Industry in Big Creek



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

In Big Creek, three census categories for employment – transportation and warehousing; educational services, health care, and social assistance; and arts, entertainment, and recreation, accommodations, and food service – collectively represent 95.5% of the employed. Transportation and warehousing makes up nearly two-thirds of total employment alone, and education services, health care, and social assistance represents more than 23% of total employment in that community.

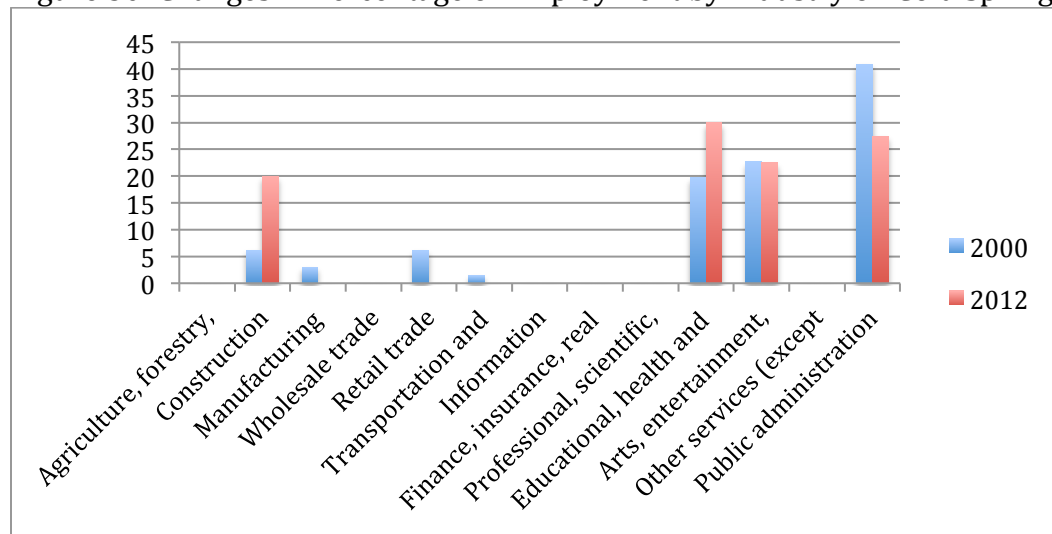
Figure 29: Changes in Percentage of Employment by Industry in Shaver Lake



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

Shaver Lake has a relatively more diverse spread of employment compared to other local communities. Educational services, health care, and social assistance is the largest employment sector as a percentage of total employment, comprising slightly more than 20% of total employment. The arts, entertainment, and recreation, accommodations, and food service make up 19.2% and construction is 17.2% of total employment by industry. Finance, insurance, and real estate totals 13.1% and transportation and warehousing is 9.8% of total employment by industry.

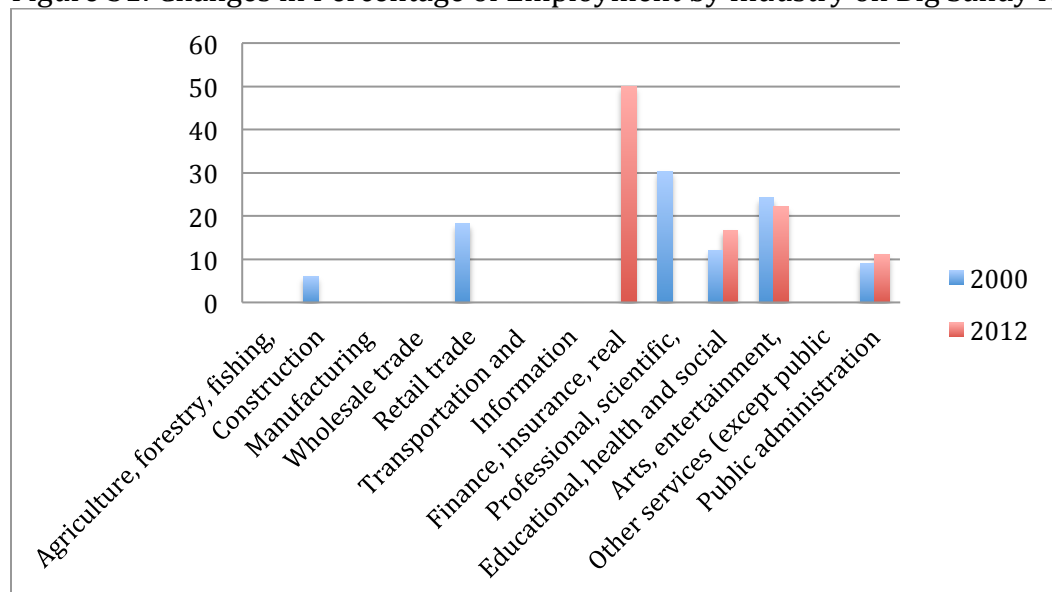
Figure 30: Changes in Percentage of Employment by Industry on Cold Springs Rancheria



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

In 2000, the unemployment rate on Cold Springs Rancheria was 3.5%. Roughly ten years later unemployment had more than doubled to 9.5%. As a percentage of total employment, the Cold Springs Rancheria experienced the largest growth in the construction and educational, health, and social assistance sectors between 2000 and 2010. During this period, however, there were decreases in the percentage of total employment in manufacturing, retail trade, and transportation and warehousing.

Figure 31: Changes in Percentage of Employment by Industry on Big Sandy Rancheria



Sources: U.S. Census 2000 and American Communities Survey 2008-2012

On Big Sandy Rancheria, the unemployment rate in 2000 was 16.2% with 52.4% of the population over 16 years not in the labor force. The unemployment rate has decreased to 5%, but, significantly, those over 16 years not in the labor force increased to 80.2% of those over 16 years old. The relatively consistent employment sectors by industry on Big Sandy Rancheria include educational, health, and social services; arts, entertainment, recreation, accommodation, and foodservice; and public administration. Jobs in all other sectors appear either non-existent or volatile between the U.S. Census in 2000 and the 2008 to 2012 American Communities Survey. In reporting these data it is important to note that the total number of individuals aged 16 and over in the labor force decreased from 33 in 2000 to 18 individuals in 2012. Small shifts can result in huge percentage changes. Employment in construction, retail trade, and professional, scientific, management, administration, and waste all decreased to zero jobs from two (6.1%), six (18.2%), and ten (30.3%) of total employment, respectively. There was an increase in those employed in finance, insurance, real estate, and rentals from zero to nine employees, or 50% of total employment in 2012 between 2000 and the American Communities Survey in 2008 to 2012. The dramatic increase in those employed in this sector is perhaps related to the increase in median household income in the data shown in the previous section.

### Historic and Cultural Character

The Dinkey Forest Landscape Restoration Heritage Program is one of the key areas in which the collaborative evaluates project progress. According to the DFLRP 2013 annual report, in the past year, “[t]he heritage program met all NEPA targets for heritage input to project planning in the Dinkey CFLR boundary, including the Muley Hazard Sale, and the Bald Mountain Project, reporting over 1300 acres of new survey, 82 archeological sites monitored, and two sites evaluated for eligibility for listing on the National Register of Historic Places (NRHP).” This included a documentation of all heritage sites in the project

area including monitoring and any necessary GIS records updating. Historic American Buildings Survey documentation was also completed on the Dinkey Ranger Station.

Data for Native American heritage sites on the Sierra National Forest are unavailable to the public in order to protect them. Determining the number of sites and their condition therefore is problematic in an area that Native American communities consider to be culturally significant as a whole. Goode (2014) estimates that “[t]hroughout the 1.2 million acres of Sierra National Forest, there are 5,000 recorded archaeological sites and more than 6,000 meadows. A large percentage of indigenous camp sites can be found near these meadows.”

The historic and cultural places documented by the U.S. National Forest Service, National Register of Historic Places, and the California Register of Historic Places include Cliff Camp Bridge, Huntington Lake, Dinkey Creek Ranger Station, Shorty’s Cabin at Courtright Reservoir, and the Mount Tom Fire Lookout. Additionally, there are two points of historic interest in the area, the Settlement of Academy and the Toll House, both located in Tollhouse.

### *Cultural Burning and Non-Timber Forest Products*

The Native American communities across the West are well known to have used fire as a key management tool to help ensure a reliable production of resources, especially food. Cultural burn practices, such as those used by members of the North Fork Mono Tribe, are described as “burning specific species and type of resource, a specific style of burning, and burning for a positive result to achieve the outcome of targeted cultural species” (Goode 2014). The essence of cultural burning is understanding what was burned, for what purpose, and how it was burned; and the relationship of the use of fire to spiritual and livelihood connections to the land and plant and animal species that co-inhabited the area. Burning as a cultural practice was important in the area now considered the Sierra National Forest to improve hunting grounds and increase the prevalence of certain range plants.

Goode describes cultural burning as “burning that particular spot three times in a ten-year period, typically during the first, third, or fourth year and again between the sixth and tenth year.” Then, “[O]nce a fire area has been secured, only two or three fires are necessary over the next twenty years.”

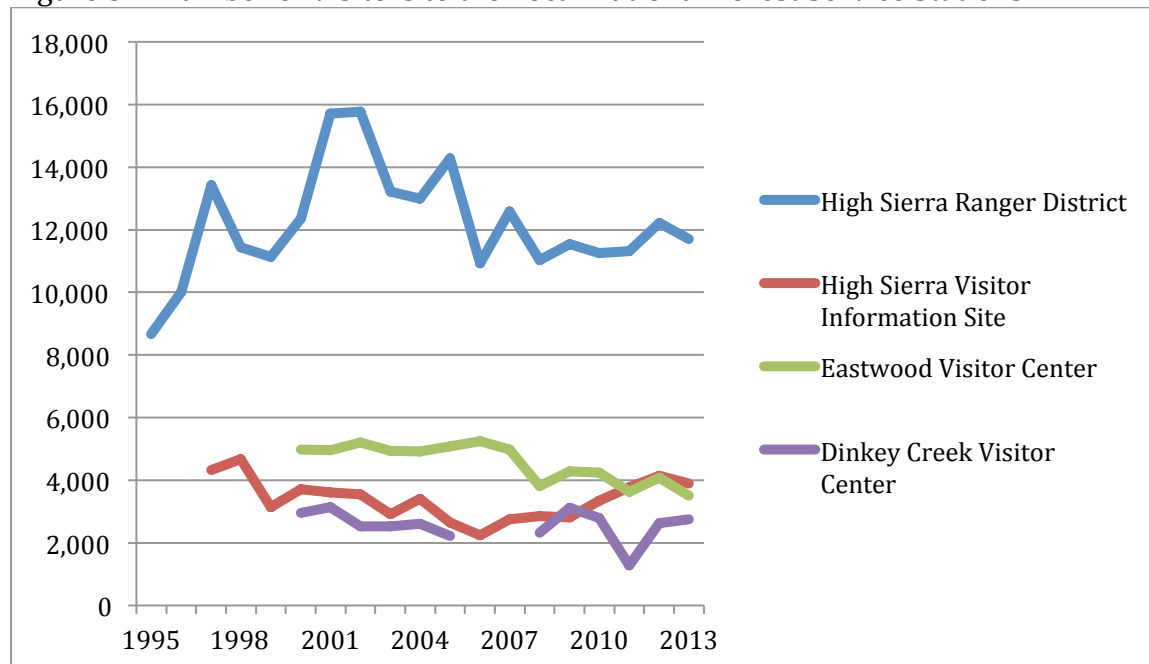
In the case of oaks, Goode estimates that thousands of oaks and dozens of oak orchards are producing less than five percent of the crop necessary to keep the wildlife population healthy.” “There are currently 10 to 13 gatherers and acorn makers on a varied scale of production. The tribal practitioners describe most oaks are producing at 10 percent or less of what they should, if at all.” The recovery process involves site preparation, felling trees in the vicinity of a wanted oak, trimming low limbs, and then applying a low-heat, broadcast burn around the treated area. Subsequent burns on untreated areas will also be necessary. In a period of fifteen years, there should be four fires, with two more fires in the next twenty years. Over a period of thirty to thirty-five years an area will have been

successfully treated and produce acorns for harvest. These types of cultural burns in the North Fork area have resulted in meadow restoration and increased the number and quality of cultural use oak trees from a previous level of five to six trees to approximately forty trees. The expert interviewee who provided this outline shared that he currently teaches youth in his tribe how to perform cultural burns, and each youth adopts a parcel to treat over the next thirty to thirty-five years. It is a relationship that will last until youth are in their sixties, and follows the traditional way in which he was taught.

### *Recreation and Visitor Use of National Forest Land*

Tourism is an important part of the local economy, particularly in the Shaver Lake and Huntington Lake areas. Sierra National Forest collects visitor use data for sites near the Dinkey area at four main centers, the High Sierra Ranger District Office, Eastwood Visitor Center, Dinkey Creek Visitor Center, and High Sierra Visitor Information Station. The High Sierra Ranger District Office, located in Prather, is the only visitor information site open year-round. The three seasonal visitor centers are open from Memorial Day weekend through mid-September. Data on visitor use is described below, and includes: the number of visitors, wilderness permits, burning permits, wood collection permits, and the number of phone calls received for each of the respective visitor centers. Visitor use data for this report was queried for each year between 1995 and 2013. USFS Visitor Information Specialists count the number of visitors to each respective station. Data on wilderness permits is also reported in this section and represents the number of permitted groups spending one or more nights in the wilderness including both walk-in and pre-arranged reservations. Burning and woodcutting permits are also included and permits issued to individuals seeking to burn slash and harvest biomass for heating respectively.

Figure 32: Number of Visitors to the Local National Forest Service Stations



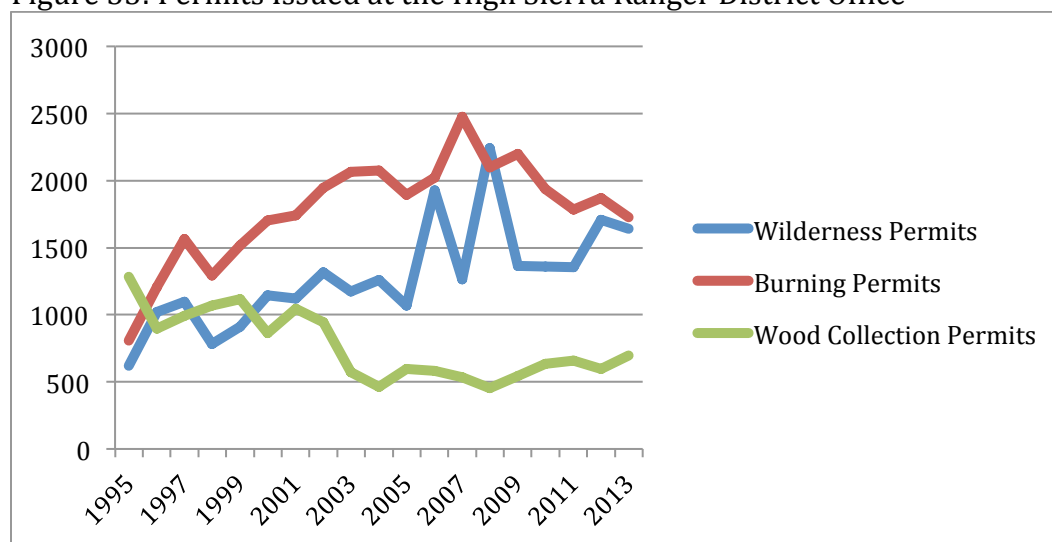
Source: High Sierra Ranger District, U.S. Forest Service

In the period between 1995 and 2013, visits to the High Sierra Ranger District Office peaked in 2002 with 15,708 visitors. Since 2006, visitor use has ranged between 10,929 and 12,593 visits. The number of annual visitors to the Eastwood Station was relatively consistent between 2000 and 2007, with approximately 5,000 visits each season. Between 2008 and 2013 the number of visitors decreased to an average of 3,928, likely due to Great Recession impacts. The number of visitors to Dinkey Creek Visitor Center has ranged from as high as 3,134 people in 2001 to as few as 1,276 people in 2011. The number of visitors to the High Sierra Visitor Information Station has ranged between 4,139 in 2012 to a low of 2,242 in 2006.

### *High Sierra Ranger District Office*

The number of wilderness permits issued between 1995 and 2013 has ranged from as low as 619 in 1995 to 2,242 in 2008. In general, there has been a gradual increase in the number of wilderness permits issued at the High Sierra Ranger District over the time period from 1995 to 2013. The number of burning permits per year, including those necessary for campfires has ranged from as low as 808 in 1995 to as high as 2,477 permits in 2007. Wood cutting permits have averaged approximately 765 per year from 1995 to 2013. The number of permits has ranged from as high as 1,283 in 1995 to as few as 451 in 2008.

Figure 33: Permits Issued at the High Sierra Ranger District Office



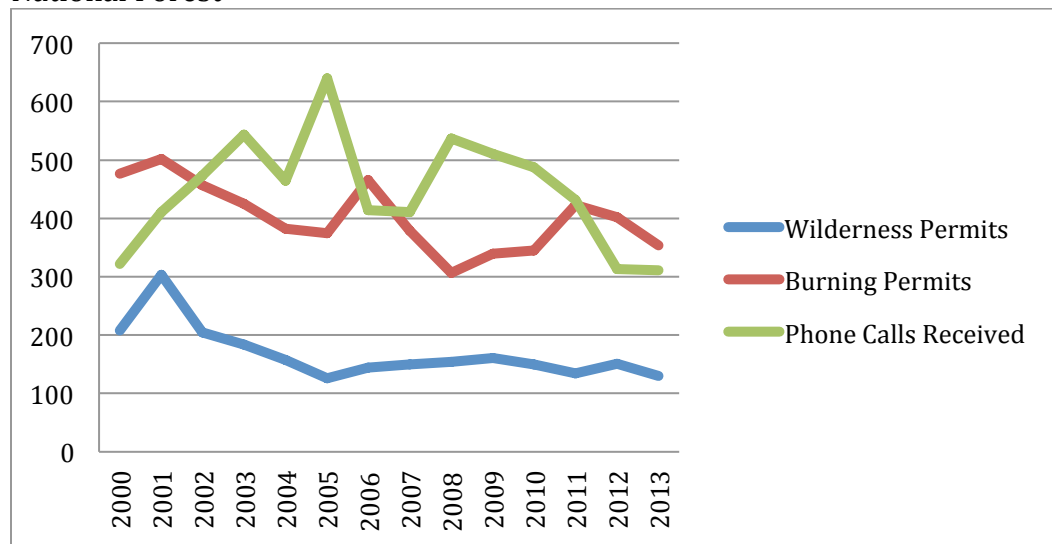
Source: High Sierra Ranger District, U.S. Forest Service

### *Eastwood Visitor Center*

The Eastwood Visitor Center data for visitor use, wilderness permits, burning permits, and number of phone call received between 2000 and 2013 are presented below. The number of wilderness permits issued at the Eastwood Visitor Center peaked in 2001 with 303 permits issued. The average number of burning permits issued on the Eastwood Visitor Center is 402 per season between 2000 and 2013. The number of permits issued ranged from as high as 502 in 2001 to as low as 306 in 2008. The Eastwood Visitor Center

received as many as 640 calls in 2005 and as few as 311 calls in 2013. Woodcutting and collection permits are unavailable for Eastwood.

Figure 34: Permits Issued and Calls Received at the Eastwood Visitor Center, Sierra National Forest



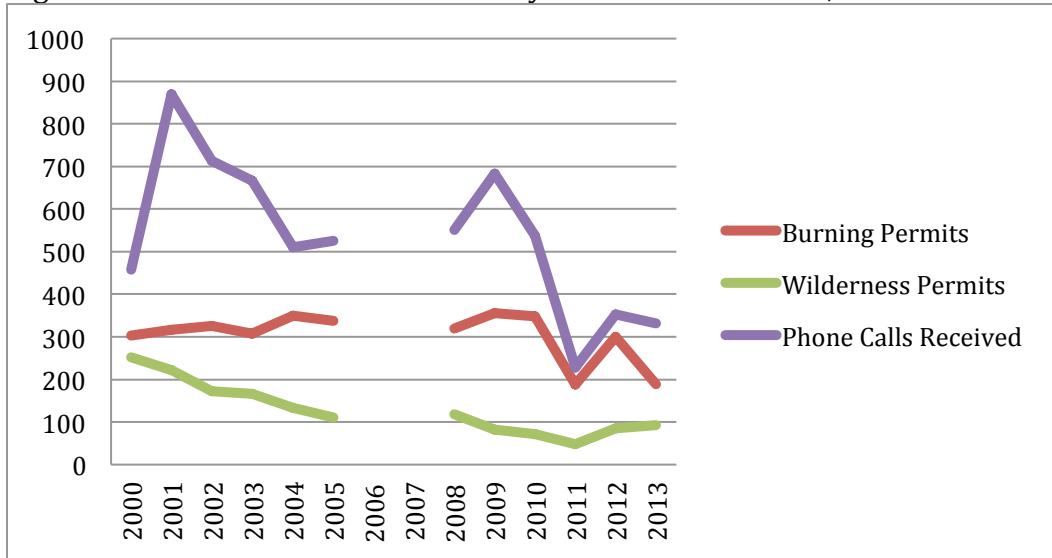
Source: High Sierra Ranger District, U.S. Forest Service

#### *Dinkey Creek Visitor Center*

The Dinkey Creek Visitor Center is located on Dinkey Creek Road and the nearest town is Shaver Lake. Data on the number of visitors to Dinkey Creek Visitor Center as well as burning and wilderness and number of phone calls received between 2000 and 2013 are presented below. The number of phone calls received peaked in 2001 with a total of 869. Calls steadily decreased for the next four years, then increased slightly in 2009 and declined to its lowest level in 2011. The number of burn permits has averaged 303 each year. The 2011 and 2013 years are outliers with 188 and 189 permits issued, respectively. Removing these two lowest years increases the average to 326 permits issued per year. The number of wilderness permits issued from the Dinkey Creek Visitor Center has ranged from as low as 48 permits issued in 2011 to as high as 252 permits in 2000.



Figure 35: Permits Issued at the Dinkey Creek Visitor Center, Sierra National Forest

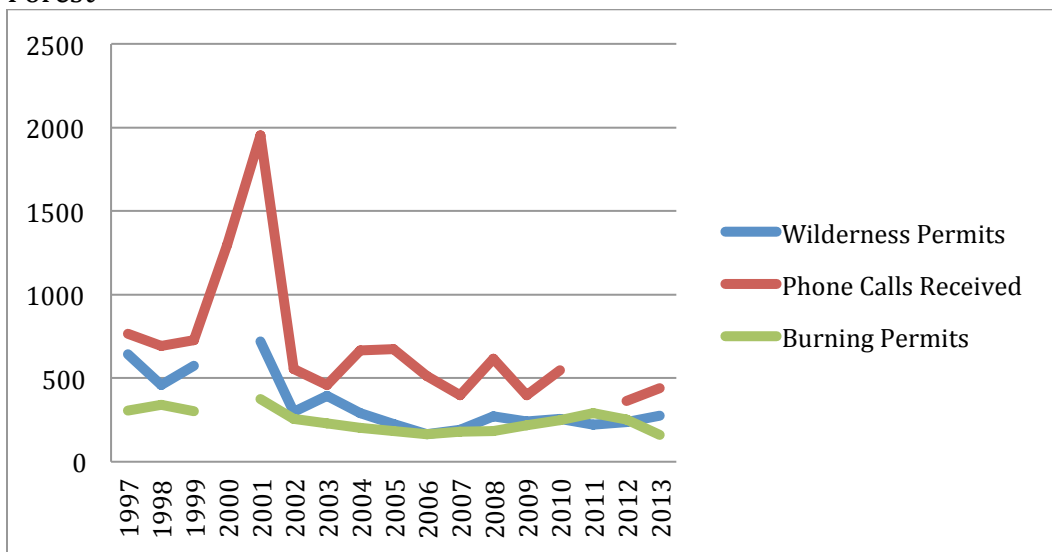


Source: High Sierra Ranger District, U.S. Forest Service

#### *High Sierra Visitor Information Site*

The High Sierra Visitor Center received a peak of nearly 2,000 phone calls in the year 2001, however, the number of calls has decreased significantly to fewer than 675 calls per season since that time. The average number of burning permits is more than 243 per year in the period from 1997 to 2013. The number of wilderness permits per year peaked in 719 in 2001 and 165 in 2006. Note that phone call data are unavailable for 2011 and the number of wilderness and burning permits issued are unavailable for 2000.

Figure 36: Permits Issued at the High Sierra Visitor Information Station, Sierra National Forest



Source: High Sierra Ranger District, U.S. Forest Service

### *Forest Service Contracting and Local Socioeconomic Benefit*

The economic data presented in this section is supplemented here with local contracting data to show the contribution of timber contracts and ecological restoration-related employment to the local economy. These data are also presented to identify key institutions and infrastructure linked to landscape management activities and to offer how they can, in turn, be strengthened to improve social, economic, and equity outcomes. In the 2013 DLRP annual report, activities in the previous fiscal year resulted in an estimated 41.8 direct part or full-time jobs and combined direct and indirect part or full-time employment of an estimated 80.5 jobs. The modeling tool used to generate the employment data, Treatment for Restoration Economic Analysis Tool (TREAT), however, does not specify job location. Hence, the TREAT model offers nothing about local socioeconomic outcomes and it is impossible to know if these jobs take place in or benefit local communities.

Contract work conducted on the Sierra National Forest, both within and outside of the Dinkey Restoration Landscape Project boundary, has predominately been awarded to California based firms. On the Sierra National Forest, between January 1, 2009 and January 1, 2014 there were a total of 70 timber and service contracts that sold for a total of \$4,350,401. The table below identifies these data for this five-year period for timber and service contract sales on the Sierra National Forest by the number of contracts and total value based on the location of the firm. Local firms include only those based in the defined local communities of Auberry, Prather, Shaver Lake, Lakeshore (near Huntington Lake), and Terra Bella.

Table 6. Total Number of Contracts and Contract Value on the Sierra National Forest between January 1, 2009 and January 1, 2014

	Number of Contracts	Value of Contracts
<b>Local</b>	34	\$1,798,095
<b>Non-Local</b>	36	\$2,552,306
<b>Total</b>	70	\$4,350,401

Source: USFS, Sierra National Forest

Table 6 shows that Forest Service contracts on the Sierra National Forest were awarded to contractors spread across a large geographic area. Some contractors traveled more than 700 miles from their home communities to work. The most distant was Mountain Home, Idaho. The following maps display the number of contracts awarded by zip code and total value.

Figure 37: Map of Contract Awards by Bidder Zip Code for the Sierra National Forest between January 1, 2009 and January 1, 2014



Source: USFS, Sierra National Forest

Figure 38: Map of Contract Value by Bidder Zip Code for the Sierra National Forest between January 1, 2009 and January 1, 2014



Source: USFS, Sierra National Forest

Though it differs by communities, contracting capacity currently exists in each of the local communities that are part of the Dinkey Landscape Restoration Project. Firms in Auberry were awarded 13 contracts for a total value of \$372,682. This totals approximately 8.5% of the value of all contracts. Auberry Forest Products and Messer Logging were the primary recipients in Auberry. The contracts sold in Prather involve the removal of hazard trees unassociated with the DLRP, and the contracts sold in Shaver Lake represent lower value contract work. Contracts awarded to firms in Prather and Shaver Lake made up less than half of one percent of total receipts. Contractors in Lakeshore, near the northeast corner of Huntington Lake, were awarded 12 contracts worth \$175,827, approximately 4% of the total value of contracts. Sierra Forest Products in Terra Bella received five contracts worth more than \$1.2 million, approximately 28% of the total of all contracts. Sierra Forest Products owns a mill where much of the harvested wood is processed. The table below shows the number and value of contracts for local communities in the DLRP.

Table 7. Number and Value of Locally Awarded USFS Contracts between January 1, 2009 and January 1, 2014

<b>Contractor Location</b>	<b>Number of Contracts</b>	<b>Value of Contract(s) (USD)</b>
Auberry	13	\$372,682
Prather	2	\$380
Shaver Lake	2	\$15,109
Terra Bella	5	\$1,234,097
Lakeshore	12	\$175,827

Source: USFS, Sierra National Forest

In total, local capture of contracts on the Sierra National Forest amounted to 48.5% of all available contracts and 41.3% of the total value of all contracts. A total of 34 out of 70 available contracts were awarded to local firms at a value of \$1,798,095 out of a total value of \$4,350,401. These data show how marginal improvements in local capture can significantly impact on the amount of contracting dollars circulating in local communities. If the total value of contracts awarded to local firms increased from the current 41.3% to 75%, an additional \$1,464,706 would be invested in local communities of the Sierra National Forest, and this does not count multiplier effects that, at minimum, would typically double the investment.

Sierra Forest Products in Terra Bella, owned and operated by the Duysen family since 1966, has employed 109 to 116 mill workers during the years 2010 through 2014. Sierra Forest Products indirectly employed an estimated 60 woods workers and 30 truck drivers in each year during this period. Approximately 75% of those directly employed by Sierra Forest Products live in nearby Porterville, California, which has a larger population, higher overall socioeconomic status, and more amenities than Terra Bella. Only 19%, or approximately 22 mill workers directly employed by Sierra Forest Products in 2014, live in Terra Bella. The average turnover rate of employees is an estimated 12% and the mill currently operates only one shift. If a second shift were added, an additional 70 jobs would be added to the mill.

On average, the Sierra Forest Products mill has produced an average of 27,500,000 board feet per year since 2009. Roughly two-thirds of the company's wood supply comes from public lands, primarily the Sierra National Forest. A total of 5,000,000 board feet per year is associated with the DLRP. Additionally, other timber and service contracts in the Dinkey area provide an additional 1,000,000 board feet per year. Timber is also sourced from the Sequoia National Forest and Mountain Home State Forest as well. Private lands provide approximately one-third of timber supply to the mill. Overall, Sierra Forest Products is critical to the infrastructure in the local geographic proximity of the DLRP. The presence of the mill helps ensure a competitive bid process for contracts administered through the USFS while simultaneously increasing the retention of contracting dollars within local communities.

## **IV. Discussion**

This section describes opportunities to enhance socioeconomic conditions through investments in local capacity to conduct restoration work, followed by discussion of how to more effectively engage Native American communities. Of particular importance for Native Americans in the DLRP area is the historic and cultural significance of cultural burning and connection to production of non-timber forest products such as black oak acorns. The section ends with a discussion about biomass utilization, drawing on lessons learned from successful efforts elsewhere.

### ***Building Local Contracting Capacity to Enhance Socioeconomic Benefits***

The Stakeholder Analysis in Section II of this report makes clear that increasing local capture of Forest Service contracting work offers an important opportunity to enhance socioeconomic benefit from investment in ecological restoration. Different types of contracts offer varied mechanisms to assure that benefits flow to local contractors and communities. Contractors may be located in a local community, or they may be hundreds of miles away. They may hire local workers or bring in crews. Socioeconomic benefits are further determined by the wages paid to workers and contract length.

The goal of many rural forest communities is to create and maintain living wage jobs and foster opportunities for entrepreneurship and business development. Businesses thrive on certainty – such as the supply of raw materials and demand for their products. The Forest Service can play an important role in ensuring adequate supply of wood products and developing contracts and agreements that require or preference contractors based locally and that hire locally. Long-term certainty may be pursued through opportunities such as stewardship contracts. Other contracts and agreements that the Forest Service may consider to enhance socioeconomic benefits to local communities include participating agreements and research and development agreements, both of which may lead to investments in labor force training and capacity building.

The Dinkey Creek Collaborative, in partnership with the U.S. Forest Service, can respond to the unique socioeconomic issues that affect local communities through targeted employment and training opportunities and contracting mechanisms targeted to improve local benefits associated with ecological restoration. Key local contractors and infrastructure identified in this report play a critical role in ensuring that economic benefits of restoration work flow to local communities. In an attempt to meet economic and social goals associated with CFLRA legislation, referenced earlier in this report, the U.S. Forest Service needs to better understand and address local needs. For example, a preliminary analysis of contractor capacity might include questions regarding the preferred size of contracts, key thresholds that may work to expand employment opportunities (e.g., supply of wood necessary to add an additional shift to a mill), what contractors need to navigate federal contracting process, and gaps in workforce training. At the time of this writing, efforts to develop an equitable system of awarding contracting preference points to local contractors has begun in Region 5 largely as a result of the efforts of Dinkey Creek Collaborative and the other CFLRs in California. Other avenues are being explored to assure restoration work contributes to local well-being improvement.

The next section expands on this conversation by addressing ecological restoration workforce-training needs specifically within local Native American communities, Big Sandy and Cold Springs Rancherias.

### ***Engaging Local Native American Communities in Ecological Restoration Work***

To develop these recommendations, interviews were conducted with members of the Cold Springs Rancheria and Big Sandy Rancheria and participation in a Tribal Forum. Tribal members made clear that the Dinkey landscape is not just a resource for forest products, water, and recreation, but also a place of cultural and spiritual connections.

The Big Sandy and Cold Springs Rancheria differ in their relationship with the U.S. Forest Service. Members of the Big Sandy Rancheria suggested that their partnership with the agency had been stronger in the past, while Cold Springs Rancheria interviewees indicated that their community has good rapport with the local Forest Service office and District Ranger. Interviewees shared that communication is the bedrock of a tribal-agency relationship and starts from the premise that “sovereign nations respect sovereign nations.” Further, one interviewee suggested that in person, face-to-face communication provides opportunity to improve the sharing of information and knowledge, and such processes may be best facilitated through an open dialogue that focuses conversation on achievable objectives and key areas of concern.

Big Sandy Rancheria and Cold Springs Rancheria community members made clear that they want to participate in the ecological restoration work associated with the DLRP. The goal of developing more locally based work crews provides opportunities to enhance educational attainment of Native American youth and adults in skill areas that align with their traditional and cultural knowledge and values for the landscape. To achieve this, public-private partnerships will need to be combined with funding strategies that assist Native American communities to develop increased economic vitality. The Cold Springs Rancheria and Big Sandy Rancheria can increase their engagement in restoration work through the development of crews that acquire and maintain skill sets specific to the current and anticipated restoration needs of the area.

### ***Some Examples That Can Inform Dinkey Work***

Enhancing efforts on the Dinkey landscape can be supported by lessons learned from the work of organizations that have been successful collaborating with Native American communities to establish restoration crews. For example, Lomakatsi, a non-profit that conducts restoration work and education and training programs in Northern California and Oregon has previous experience working with Native American communities developing local restoration-related employment opportunities. Another organization, the California Indian Manpower Consortium (CIMC), whose purpose is to provide training and employment opportunities to meet the needs of Native American communities, may also act as a key partner in these efforts. Currently, Big Sandy and Cold Springs Rancherias work with the CIMC, which provides Title VI grants for nutrition, information and assistance service, and caregiver support services. An existing relationship with CIMC provides the opportunity to expand efforts as part of a larger strategy to enhance socioeconomic conditions on the respective Rancherias.



Of particular interest in this case is the work of the Amador Calaveras Consensus Group (ACCG) and its partner work group, Calaveras Healthy Impact Product Solutions (CHIPS), which has been successful at developing a Native American crew to conduct restoration work associated with their CFLRP. This work started from the shared understanding and belief that Native American communities have the ability to develop and maintain institutions that will work to ensure sustainable economic, social, ecological, and spiritual and cultural well being of their communities. CHIPS success relied on a small group of dedicated individuals representing the collaborative, Native American communities, and local government that worked together to support the effort. Subsequently, the Native American crew has developed specialized skills in restoration work, particularly cultural site work. A key challenge for CHIPS was providing reliable transportation for workers. This was addressed by investing in vehicles and a part-time driver that shuttled employees to and from job sites. Similarly, interviewees on Cold Springs Rancheria specifically mentioned lack of transportation as a barrier to securing and maintaining employment. Leaders of CHIPS shared that drug and alcohol policies need be clear, and that contractors need to tolerate and fairly deal with mistakes.

There is a history of socioeconomic hardship and loss of cultural identity that present both unique challenges and opportunities within Native American communities. Due to depressed economies, communities do not always have the financial capital required to conduct trainings, organize work crews, or provide basic services. According to the First Nation Development Institute, one of the biggest challenges to encouraging business development in Native American communities is the lack of financial capital necessary to support emerging, small, locally owned businesses. The organization suggests that developing financial and investor education opportunities is a critical step towards responding to the needs of Native American entrepreneurs.

The First Nations Oweesta Corporation, a community development financial institution, works in partnership with Native American communities to design and administer financial and investor education programs. The organization also suggests that financial education be incorporated into local public schools training programs to benefit not only Native American youth but all rural youth in the area to support systemic change that will contribute to the economic freedom for local families. Part of the process may therefore involve investing in and building the capacity of the organizers in the community that can help facilitate training programs, whether they are within in the school system or to a group of local contractors.

Education and training programs in the Dinkey area may be focused on the restoration of culturally significant or sensitive sites, aquatic habitat restoration, invasive weed abatement, native grass seeding, tree marking, or trail rehabilitation, as well as monitoring activities. Other project specific work activities may vary over time and be based on local needs. Once assembled, crews will be able to directly participate in restoration work and the community at large stands to benefit from increased opportunities associated with transporting chips and logs, maintaining equipment, and indirect service sector employment. Funding may be leveraged for education and training through partnerships with Sierra Pacific Industries, the California Workforce Development Programs including

the Labor and Workforce Development Agency, Health and Human Services Agency, California Community Colleges, and the California Department of Education, as well as other national and state programs. For example, CIMC provides training for entrepreneurs through Rural Business Enterprise Grants and the California Native Entrepreneur Opportunity Fund.

A more in-depth analysis of the opportunities to engage local Native American communities may provide the necessary information that can help build a stronger understanding of the site-specific characteristics that will ultimately influence the ability of these communities to participate. An analysis should attempt to understand the scope of future or anticipated landscape restoration work, the level of commitment and interest among the respective Rancherias in developing work crews, contracting mechanisms available to both certified and non-certified contractors to achieve restoration goals that also contribute to local social and economic improvements, and the relationship and communication structure that currently exists between the Big Sandy and Cold Springs Rancherias and the U.S. Forest Service. Further, more detailed analysis of CHIPS' partnership with Native American communities to develop work crews may shed light on how those relationships were developed, how the project was led and supported, and to what extent the lessons learned are applicable to other cultural and political contexts and landscapes.

### ***Cultural Burning and Non-Timber Forest Products***

The cultural landscape of the DLRP also includes Native American communities historical relationship with wildfire and the gathering of non-timber forest products and traditional foods. As discussed above in the section *Cultural Burning and Non-Timber Forest Products* (p. 53), Native American communities across the West are well known to have used fire as a management tool (e.g. Goode 2014). Cultural burn practices, such as those used by members of the North Fork Mono Tribe, were developed based on an intimate understanding of what to burn, for what purpose, how to burn, and the relationship of the use of fire to culturally significant spiritual and livelihood needs. Burning, as a cultural practice, has been historically important in the Sierra National Forest, and was used by Native Americans to improve hunting grounds and increase the abundance of certain plant species.

The collection and harvesting of traditional food sources is an area of special consideration and current concern of local tribes in the Dinkey area. Gathering places are sacred and often a significant source of cultural and spiritual fulfillment for local families. Interviewees shared that there are more than 200 different resources gathered on Rancheria and U.S. Forest Service land, and as many as 95 of which are food. Native American community members strongly suggested that ecosystem management practice take into account the harvesting of these non-timber forest products such as black oak acorns.

Local Traditional Ecological Knowledge is a framework of understanding landscape and specific plant needs and can be used to address diminished Native Black Oak acorn production as well as used on a larger scale to enhance ecosystem restoration.

The Dinkey Creek Collaborative and the Forest Service can improve its pursuit of a landscape restoration strategy that addresses valued cultural resources especially in the restoration of black oak. This includes consultation and more regular communication, which should be face-to-face and include consistent representation among the different sovereign nations.

### ***Employing Lessons Learned from Biomass Utilization Efforts in the West***

Biomass wood processing opportunities are included in this report based on the needs identified in the development of the socioeconomic assessment with the Dinkey Creek Collaborative, and because improvement in value added processing can contribute to meeting ecological and socioeconomic goals. One well-known example of community-based biomass utilization development in the West is the Integrated Biomass Resource (IBR) campus in Wallowa County, which was developed by a high capacity, community based organization, Wallowa Resources. IBR was a product of nearly a decade of hard work and dedication on the part of Wallowa Resources with support from county, state, and federal government agencies. The IBR is a single facility that functions by processing small diameter logs based on their highest value use. The processing facility allows managers to adapt to dynamic markets by strategically adding value to forest restoration byproducts.

There are a number of barriers that Wallowa Resources faced in developing the IBR campus. Challenges included development of relationships with entrepreneurs, managing investment risk, and ensuring a reliable supply of small-diameter logs (Davis 2014), among other things. The benefits of IBR are significant and include improved harvest economics: reduced harvest cost per acre, increased recovery rates of small log and biomass material by volume, reduced raw material costs for campus businesses, and other operational advantages. Ecologically, the presence of the IBR campus increased total biomass per acre removed through the expansion of log specifications to include non-saw logs, thereby increasing the number of acres treated for hazardous fuel reduction. Socioeconomic benefits in the surrounding communities were enhanced through local ownership of the facility, which also increased the commitment to sustaining operations and training and employing local workers. Utilization and investments in infrastructure and human capital have helped catalyze the future capacity of the region to conduct restoration treatments while maintaining local economic capture of the associated goods and services.

In California there exists the Biomass Working Group that brings together state and federal agencies, practitioners, developers and others regularly meeting in Sacramento to advance work on the ground and policies that will increase and make easier wood and biomass utilization and the needed businesses and investors. Specific to California and a potential opportunity for the Dinkey Collaborative and the Sierra National Forest comes from California Senate Bill 1122, which requires Investor Owned Utilities to invest in electricity produced by forest biomass facilities of less than three megawatts. The legislation requires investor owned utilities to purchase a minimum of 50 megawatts of forest bioenergy per year, three megawatts of which are in the Southern California Edison and Dinkey territory. The mechanisms for implementing SB 1122 are being finalized at the time of this writing.

Developing local facilities can help reduce hazardous fuels in the Sierra and support both one-time construction jobs and on-going direct employment to local contractors and others involved in such facilities. Local communities adjacent to the Dinkey CFLR area appear to be good candidates for siting a forest biomass power facility, though more study is needed. Support for studies can be obtained from the State Wood Energy Team hosted by the Watershed Research and Training Center, or through work with other rural forest communities participating in a newly launched capacity building through wood utilization project supported by a Rural Community Development Initiative and led by the Sierra Institute. The Sierra Nevada Conservancy has also dedicated support for biomass development, such as development of a bioenergy facility in North Fork that was recently awarded a grant by the California Energy Commission for facility construction. Finally, a new program to be launched by CalFire involving AB32 carbon offset payments for forestry-related activities may offer other funding opportunities, though funding mechanisms have been delayed as CalFire and the Air Resources Board work to develop implementation mechanisms including preferred methods for calculating carbon benefit.

The 2014 Farm Bill permanently reauthorized stewardship contract authorities, which represents an important tool that land managers can use to foster ecological as well as economic and social goals. Biomass utilization and other harvest and service opportunities in the Dinkey area can be supported through long-term stewardship contracts and agreements. Stewardship contracting allows the Forest Service to develop contracts and agreements with providers to conduct integrated restoration work. These types of longer-term contracts can represent critical biomass utilization investment and help support establishment of SB1122 and other wood product utilization facilities.

Generating capital investment can be difficult to obtain, especially in early phases of a biomass utilization project, but which is necessary to conduct feasibility and engineering studies. Challenges also stem from the very nature of these rural places, which in some cases lack access to infrastructure such as transmission lines and transportation corridors to markets. Despite those challenges, early success of some California groups to advance biomass energy projects suggests this could be pursued as an avenue to increase biomass utilization, local job creation, and local community development.

## V. Conclusion

The purpose of this project is to identify key community conditions and examine priority socioeconomic indicators and measures that can be used to evaluate and monitor conditions in the communities surrounding the Dinkey Landscape Restoration Project. In general, indicators and measures were selected based on their utility in providing insight regarding the socioeconomic conditions of local communities as well as the time and cost required to collect quality data. In some cases, when a preferred measure is unavailable, often due to data limitations, a measure that informed the indicator of interest was selected. Indicator and measure options, particularly for economic and business data in the communities included in this report, are unavailable because the unit of analysis is often at the county level, and disaggregation for these data is not possible. Desired measures for the communities of Prather, Tollhouse, and Lakeshore were not included because appropriately scaled quality data are unavailable. This is an all-too-common problem for assessments that include small rural communities.

This section begins with a review of the findings and associated recommendations from the Stakeholder Analysis. This is followed by a summary of key findings from the socioeconomic assessment, including a discussion about how the Dinkey Creek Collaborative, in partnership with the U.S. Forest Service, can work to meet socioeconomic monitoring requirements and goals, as well as measures that may be of interest in future socioeconomic assessment and annual monitoring work.

### ***Stakeholder Analysis: Summary of Key Findings and Recommendations***

#### **1. Forest Management**

- Forest management is the key to economic success in the area, not only through forest jobs that are created but also through protection of the area and the recreation economy dependent on the forest.
- A more comprehensive approach to forest management is needed.

##### *Recommendations:*

- 1.1 *Explore previously undeveloped possibilities for forest management and fuels reduction, including, but not limited to biomass utilization.*
- 1.2 *Reduce the risk of catastrophic wildfire through active thinning.*
- 1.3 *Create jobs through the utilization of forest products.*
- 1.4 *Manage species of special concern through an ecosystem perspective that seeks to improve habitat in general.*

#### **2. A Viable Wood Products Industry is Vital to Forest Management**

- Available timber harvest needs to be maintained and, provided it is consistent with environmental objectives and monitoring, increased.

##### *Recommendations:*

- 2.1 *Work to ensure that local/regional mills maintain access to timber resources, are able to procure needed volumes, and remain viable.*

- 2.2 *To the extent feasible, ensure that bidding processes are competitive, and that no single company is able to secure advantage to the extent that the viability of another is threatened.*
- 2.3 *Explore ways to link stewardship contracts and/or other mechanisms that produce timber in ways that ensure industry/company viability.*
- 2.4 *Adaptively expand access into areas that were previously unavailable for harvest in order to increase timber production only if accompanied by comprehensive monitoring that will advance understanding of ecological impacts.*
- 2.5 *Identify monitoring outcomes or “thresholds” to inform management activities, including those that halt ongoing work as well as those that allow work to continue and/or be expanded.*

### 3. Native American Involvement in Dinkey Creek Work

- Forest management and use of controlled burns may negatively affect traditional Native American non-timber harvest products.
- Incorporation of Native Tribal knowledge, known as Traditional Ecological Knowledge, can improve land management and ecological outcomes.
- The Tribes and the Forest Service have worked effectively before, and Tribes have called for more joint work.

#### *Recommendations:*

- 3.1 *The Dinkey Creek CFLRP and Forest Service should increase outreach work with local Tribes to advance understanding and improve the availability of traditional wild harvest foods such as acorns and other culturally significant plants, and ensure preservation of culturally important sites.*
- 3.2 *Tribal groups should engage and have members directly involved in Dinky Collaborative work.*
- 3.3 *Native American concerns need to be understood before controlled burns are approved and implemented.*
- 3.4 *Increase the use of “cultural” fire to achieve ecologically sound landscape outcomes and increase Tribal engagement.*
- 3.5 *Utilize local Tribal members with appropriate training as fire managers or technicians, monitors or cultural consultants.*
- 3.6 *Consider additional cultural fire in pilot areas in consultation with or active involvement of Tribes.*
- 3.7 *Explore and advance opportunities to employ local Tribal wildland fire fighting crews, and increase training and involvement in other Forest Service forest management activities.*

### 4. Contracting with the Forest Service

- Contracting with the Forest Service is considered by many to be difficult, opaque, and in need of improvement.
- Contracting with private companies and Enterprise Teams is viewed favorably by the Forest Service.

- Stewardship end-result contracts are possible through the Forest Service, and can create longer-term work for contractors and make a positive contribution to the local economy.
- Some stakeholders indicated that commercial Permit holders on Forest Service land are less likely to make improvements to facilities and infrastructure with environmental restrictions, but this issue is at best tenuously linked to the Dinkey CFLRP.

*Recommendations:*

- 4.1 *The Forest Service contracting procedures need to be made more transparent and accessible to encourage local bidding on work.*
- 4.2 *The Forest Service should do more to improve contractor understanding to help reduce non-compliance issues.*
- 4.3 *The Forest Service and the Dinkey Creek Collaborative should consider developing an expanded pool of potential contractors through outreach and capacity building.*
- 4.4 *Utilize Enterprise Teams and local contractors when local agency capacity threatens timely completion of needed environmental documentation and projects.*
- 4.5 *Establish contractual relationships between the Sierra National Forest and local contractors through the use of small business set aside authorities.*
- 4.6 *Use multi-year stewardship end-result contracts to assure contractors a quantity of work over time to encourage investment in equipment, land, and the Dinkey Creek Collaborative.*
- 4.7 *Utilize Best Value contracting to increase the likelihood of local contractor capture of contracts.*

## 5. Local Economy, Employment, and Community Capacity

- Recreation and second-home development have failed to stimulate the local economy as hoped.
- There is a shortage of available employees in the community of Shaver Lake.
- Yet there may be a local source of forest labor and equipment.
- The Terra Bella wood products operation is critical to the Dinkey landscape and a “local” community.
- Road infrastructure is critical to economic opportunity.
- Community capacity appears in decline; existing volunteer and stewardship organizations should be supported to help maintain and rebuild capacity.

*Recommendations:*

- 5.1 *Assess the number of workers with forest management skills and equipment, and explore development of small businesses associated with stewardship contracts and other landscape work.*
- 5.2 *Assess and discuss how to ensure a competitive bid environment is maintained, and explore development of a real landscape-mill-community relationship.*

- 5.3 *Involve community groups in Dinkey Creek CFLRP initiatives whenever possible in order to secure benefits for the forest through volunteer labor, increase the validation of groups, and as a way to share Dinkey work.*
- 5.4 *Promote community involvement in Dinkey land stewardship activities to increase the sense of personal responsibility for longer-term stewardship of the area.*

## 6. Precedent Setting Dinkey Creek North and South Project

### *Recommendations:*

- 6.1 *Previous Dinkey Creek North and South project work should be given greater consideration and more effectively integrated into current collaborative work.*
- 6.2 *The vision, experience, and expertise of former Dinkey Creek North and South members should also be more effectively utilized in future decision-making.*
- 6.3 *Bringing previously planned Dinkey North/South forest management activities to scale to increase employment opportunities through expanded thinning operations.*

## 7. Water shortages May Limit Future Development

### *Recommendations:*

- 7.1 *Additional monitoring of the relationship between forest, forest treatments, and the hydrologic regime in the Dinkey CFLRP should be explored.*

7.2 *Watershed recharge should be made an important element of the Dinkey Creek CFLRP process.*

### ***Key Findings from the Socioeconomic Assessment***

Auberry Elementary of the Sierra Unified School District closed in 2011. The closure and subsequent lack of school-aged children in Auberry presents an especially important challenge because schools in small rural communities often serve as the “lifeblood” of the community and provide a center of engagement and activity. Sustaining community engagement and providing living wage jobs is critical to the future vitality of Auberry.

Big Creek, with a population of 175 residents is small town, but the community enjoys a relatively large number of children aged 14 and younger as a percentage of total population. In Big Creek, those aged 14 and younger make up more than 30% of all residents. Despite the younger makeup of the community, per capita income is \$35,214, which is the second highest in the study area. Big Creek, with 28% of all housing stock for seasonal, recreational, or occasional use, has the second largest percentage of all local communities designated for this purpose.

Shaver Lake maintains a relatively older population and a large stock of seasonal homes. More than 81% of homes in Shaver Lake are for seasonal, recreational, or occasional use. Shaver Lake, with a high level of natural amenities and a relatively large population of retirees and second homeowners, faces challenges such as engaging recreationists and



seasonal homeowner in local economic development. While a challenge, it also represents opportunity to enhance community conditions.

Growth in the total population of the Big Sandy Rancheria is a positive sign, especially given the increases in young families, an increase in per capita income since 2000, and the fact 36.8% of the total housing stock in the community was built between 2000 and 2009. Low school enrollment rates for those in nursery school and Kindergarten may however indicate younger families with children are not settling in commensurate numbers.

The 17.6% growth in the total population of Cold Springs Rancheria combined with increases in the inflation adjusted per capita income since 2000 is a positive sign. The population increase, however, is largely concentrated in a few age groups. The total number of students enrolled in K-12 decreased by 59.5% since 2000. The largest reductions in enrollment were in K-8, which contributed to the closure of Sierra Elementary School.

The presence of Sierra Forest Products in Terra Bella makes the community an important part of the Dinkey Creek project. Terra Bella is the youngest and most ethnically diverse community in the study area. Approximately 88% of the population is Hispanic or Latino, and agriculture is the main employment sector. The Sierra Forest Products Mill represents is an important wood utilization facility and source of jobs, including contractors living in other local communities.

#### *Local Contracting and Socioeconomic Benefit*

Building local contracting capacity to enhance socioeconomic benefits begins by identifying key institutions and infrastructure, such as Sierra Forest Products, Auberry Forest Products, and Messer Logging, among other small independent contractors, linked to landscape management activities. Local capture of Sierra National Forest contracts was \$1,798,095, or 41.3% of the value of all contracts. Firms in Auberry were awarded 8.5% of the total value of all contracts. Contractors in Lakeshore, near the northeast corner of Huntington Lake, were awarded approximately 4% of the total value of contracts. Sierra Forest Products in Terra Bella received approximately 28% of the value of all contracts. Contracts awarded to firms in Shaver Lake made up less than half of one percent.

Improvements in local capture can have a major impact on the amount of contracting dollars that circulate through local communities. If the total value of contracts awarded to local firms increased from its current level to 75%, this would result in an additional \$1,464,706 invested in the communities adjacent to the Sierra National Forest, a total that does not include multiplier effects. The Dinkey Creek Collaborative, in partnership with the USFS, might consider conducting further analysis of local contractor capacity to better understand site specific needs such as workforce training and technical assistance gaps, preferred size and scope of contracts, and critical thresholds to expanding employment opportunities.

### *Enhancing Socioeconomic Conditions Through Native American Engagement*

Big Sandy and Cold Springs Rancherias made clear that tribal members want to participate in the ecological restoration work associated with the DLRP. The goal of developing more locally based work crews, specifically crews from the Big Sandy and Cold Springs Rancherias, is to provide opportunities to enhance educational attainment of Native American youth and adults in skill areas that align with traditional and cultural knowledge and values inherent in the landscape. Effective methods for engaging tribes in landscape restoration work along with external funding opportunities can be drawn from Lomakatsi Restoration Project and the CHIPS project in the central Sierra, among other organizations. Resources and assistance in this endeavor may be available through the California Indian Manpower Consortium, First Nations Oweesta Corporation, California Workforce Development Programs, and the California Native Entrepreneur Opportunity Fund, among others.

### *Supporting Cultural and Spiritual Well Being of Native American Community Members*

Traditional food sources in the Dinkey area are gathered by Native American families and include more than 200 difference resources. Gathering places are sacred and serve as a source of cultural and spiritual fulfillment for local families. The Dinkey Creek Collaborative and the Forest Service have begun to integrate Traditional Ecological Knowledge into management and landscape scale restoration strategies. This is progress. Further progress can be obtained through continued consultation and communication with local sovereign nations, and informed by plan development and implementation and monitoring.

### *Advancing Community Biomass*

Socioeconomic benefits of biomass utilization are enhanced through local ownership and the employment of local woods workers. Ensuring a long-term supply of small diameter logs is critical in securing investments in infrastructure and developing a successful business plan. Recent public policy, most notably Senate Bill 1122 in California and the permanent reauthorization of stewardship contracting authorities by the federal government should be examined as offering opportunity to build community supported biomass. Dinkey Collaborative members are also involved in a Rural Community Development Initiative focused on community development through wood product utilization. This project, led by the Sierra Institute, is working directly with community organizations to build local capacity and improve wood utilization in rural forest communities throughout the Sierra and Northern California.

### *Meeting future socioeconomic monitoring requirements*

The Dinkey Creek Collaborative monitoring group is tasked to foster better understanding of the impacts of landscape restoration in the local communities surrounding the DLRP through continued data collection, analysis, and review. The findings in this report represent baseline data regarding current local socioeconomic conditions. Continued monitoring efforts are both required by the CFLRA legislation and critical to identifying and working to improve community conditions. Landscape restoration work can and should play a greater role in improving socioeconomic well-being of local rural communities. Concerted effort will be needed to address challenges associated with building local capacity and increasing the number and value of contracts awarded to local bidders.

Ultimately, it will take a suite of strategies to enhance community conditions with no one approach sufficient to address the breadth of socioeconomic challenges facing communities in the Dinkey area.

*Measures and indicators to consider for future socioeconomic assessments*

Future socioeconomic assessments may benefit from more robust measures than this study highlighted. The Dinkey Collaborative may choose to develop primary data for additional indicators of interest, especially when little or no socioeconomic data are available for critical interests. An enumeration of measures used in other contexts or that may be of interest are included next. It should be noted that not all of these measures may be relevant in the communities of interest or deemed as important to measures in future studies, thereby underscoring the need to engage locals in the selection of chosen measures.

Indicators that could also be measured in future studies include the number and value of secondary, or indirect jobs created through restoration work; the number of foreclosures and rates of foreclosures over time; property and sales tax revenues; and occupancy rates of hotels and retail spaces, as well as job training program enrollment and placement rates. Public health measures might include rates of alcoholism or binge drinking, drug addiction, obesity and diabetes rates, underage drug and tobacco use rates, malnutrition, access to health care facilities, behavioral health, and suicide rates. As well as the number of police responses to calls of domestic violence, percent of children removed from the custody of their guardians due to abuse, theft and burglary rates, and other crimes against property.

Educational measures of interest may include graduation and drop out rates, test scores and percentage of students meeting state and national standards, and head start participation rates. Additionally, information on school closures, local revenues to schools, and literacy rates may be of interest. The challenge is two fold, the assessment needs to be both focused on measures for which data is available and also develop a robust set of measures that represent conditions on the ground.

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## VII. Appendix

Table 8. Sierra National Forest Contracts and Contract Value, by Contractor Location between January 1, 2009 and January 1, 2014

<b>Contractor Location</b>	<b>Number of Contracts</b>	<b>Value of Contract(s)</b>
Ahwahnee, CA	1	\$657.00
Auberry, CA	13	\$372,681.78
Chico, CA	1	\$80,500.00
Coulterville, CA	1	\$52,600.00
Coursegold, CA	1	\$135.25
Fresno, CA	1	\$730.00
Fresno, CA	1	\$170.00
Lakeshore, CA	12	\$175,827.00
Lindsay, CA	2	\$10,000.00
Mariposa, CA	1	\$114,890.60
Mountain Home, ID	5	\$324,221.00
North Fork, CA	5	\$19,744.32
Phoenix, OR	6	\$206,844.50
Prather, CA	2	\$380.00
Redding, CA	1	\$49,000.00
Sacramento, CA	7	\$551,280.80
Shaver Lake, CA	2	\$15,109.28
Sonora, CA	3	\$806,758.23
Terra Bella, CA	5	\$1,234,096.93
Tuolumne, CA	1	\$56,431.00
Yreka, CA	3	\$265,085.07
Yuba City, CA	1	\$13,258.00

Source: USFS, Sierra National Forest