

# System Indicators

## Agricultural Lands and Ranches



Final Report

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## Introduction

Native Americans used horticulture techniques for thousands of years in the Sierra before European settlers arrived and established the working landscapes we are familiar with today (Sierra Business Council, 2007). Once European settlers arrived in the Sierra, a number of environmental and physical factors (e.g., slope, soils, water availability, weather patterns and vegetation) favored the development of ranches and smaller scale agricultural operations. For purposes of this report, agriculture is defined as all fruit, vegetable, nut, and grain crops grown for human consumption. Agriculture also includes irrigated field crops that produce hay and haylage. Agriculture also refers to all animal production operations exclusive of ranches. Ranches include all irrigated pasture lands and non-irrigated pasture lands (i.e., rangelands), which are used to grow cattle and calves, beef cows, milk cows, sheep and lambs.

Agriculture and ranches, collectively referred to as working landscapes in this report, are two of the most commonly observed land uses on private lands in the lower and mid elevations of the Sierra. These working landscapes are not simply a sector of our Sierra economy involved in employing Sierra residents, producing goods and contributing to the economy, they are the foundation of the rural aesthetic and cultural identity of large parts of the Sierra Nevada. In addition, these lands are critically important habitat for a large number of native species, particularly in the foothills of the Sierra.

This sixth report in the System Indicators series examines the status of agriculture and ranches on private lands throughout the Sierra Nevada Conservancy (SNC) Region using three major indicators:

- The total area in agriculture and ranches in the Sierra and the size of individual operations;
- The overall number of farms and ranches and crop types; and
- The economic productivity of working landscapes in the Region.

In general, data on agriculture and ranches is available strictly by totals per county for the Region. In those cases, the indicators address those counties that are fully within the Region compared to those counties that are partially within Region. The counties that are fully within the Region (or whose private lands are fully within the Region) include Alpine, Amador, Calaveras, Lassen, Mariposa, Mono, Nevada, Plumas, Sierra, and Tuolumne. The counties that are partly within the Region include Butte, El Dorado, Fresno, Inyo, Kern, Madera, Modoc, Placer, Shasta, Tehama, Tulare, and Yuba.

Vegetation mapping was also analyzed to identify the areas of potential agriculture and ranches within the Region. Unlike county level data, this mapping conforms exactly to the SNC's boundary.

In many instances, the report also provides information relative to the six Subregions in the Sierra Nevada. The six Subregions are:

- North:** Modoc, Lassen, and Shasta Counties
- North Central:** Tehama, Butte, Plumas, and Sierra Counties
- Central:** Yuba, Nevada, Placer, and El Dorado Counties
- South Central:** Amador, Calaveras, Tuolumne, and Mariposa Counties
- East:** Alpine, Mono, and Inyo Counties
- South:** Madera, Fresno, Tulare, and Kern Counties

Although some patterns do exist relative to working landscapes in the Sierra, each Subregion or county has a unique composition of working landscapes and the local culture reflects the working landscape heritage of the particular county. Modoc, Lassen, and Plumas Counties have significant land in both

agriculture and ranches, while Sierra County's working landscapes are largely composed of ranches only. The counties in the Central Subregion have experienced significant population increases in the last 10 years. These counties had the smallest farms and experienced significant conversion of ranches to other land uses, particularly in Placer County. The counties that are partly within the Region on the western side of the Sierra in the north and south have strong agricultural economies that include both agriculture and ranches; these counties include Tehama, Butte, Yuba, Madera, Fresno, Tulare, and Kern Counties. The counties in the East Subregion produce forage and have livestock operations. However, few agricultural crops are grown in this Subregion. In the South Central Subregion, ranches make up almost half of the private land and there tends to be smaller farms and fewer farms in agricultural production. The exception is Amador County; the leading agricultural product for this county in 2011 was wine grapes.

## Highlights

- Amador County had the greatest percent of private land in working landscapes for a county fully within the Region at 56 percent followed closely by Mariposa County at 48 percent. Madera, Fresno, and Tulare Counties, which cross the Region into the San Joaquin Valley, all had upwards of 70 percent of their private land in working landscapes.
- Counties in the South Subregion led the State in agricultural and ranch production in 2011. The majority of the agricultural production in the counties in this Subregion occurred outside of the Region.
- Ranches were the dominant working landscape in the Sierra in 2007. Amador County had 50 percent of private land in ranches while Mariposa County had 47 percent, which were the highest percentages for counties fully within the Region. For counties that are partly within the Region, Inyo County had the greatest proportion of private land in ranches at 52.6 percent followed by Modoc County at 46.4 percent.
- Of the counties fully within the Region, Lassen County had the largest acreage of agriculture (farms) at 82,567 or seven percent of the total private land. The acres of land in agriculture showed a trend of largest to smallest from north to south and after Lassen County, the largest number of acres in agriculture was in Plumas County at 18,487. Forage was the most common crop type.
- Cattle and Calf Operations were the most common type of working landscape for the counties fully within the Region and these operations were one of the leading types of working landscapes in all 22 counties fully or partly within the Region.
- The counties fully within the Region produced over \$317 million in gross agricultural production in 2011 and the counties partly within the Region produced close to \$21 billion.
- Of the counties fully within the Region, Lassen, Mono, and Mariposa Counties had the leading agricultural commodities sales in 2011 at \$89,539,000, \$53,068,000, and \$30,975,000, respectively. Lassen and Mono Counties also had the highest irrigated water use of the counties fully within the Region (Kenny, Barber, Hutson, Linsey, Lovelace, & Maupin, 2009).
- The counties fully within the Region accounted for about two percent of the total irrigated land in California while the counties partly within the Region accounted for 46 percent of the irrigated land in California. Irrigated water use correlated strongly with total gross agricultural value and net cash farm value in the Sierra. Use of irrigated water decreased from north to south in the Sierra.
- Placer and El Dorado Counties, which are both partly in the Region, saw the greatest percent change in conversion of working landscapes to other land uses between the 2000 and 2010 census. Further, these counties had the least amount of private land in working landscapes and the median farm size was the smallest compared to the other counties in the Region.
- In 2011, 994,201-acres (approximately 70 percent of the working landscapes) in the counties fully within the Region were in prime (agriculture) and non-prime (rangeland) Williamson Act contracts. In the counties partly within the Region, there were 5,972,286-acres (about 71 percent of the working landscapes) in prime and non-prime Williamson Act contracts.

## Area and Size of Working Landscapes

The area and size of working landscapes are examined here using two different sources of information. The first is the acreage of potential agriculture and ranches derived from vegetation mapping from CalVeg (United States Department of Agriculture (USDA), Forest Service, Pacific Southwest Region, 2010)<sup>1</sup>. The CalVeg data provides an estimate of the total acreage of working landscapes in the Region since datasets for working landscapes specific to the SNC's boundary are not available. Lands identified as ranches should be considered only as potential ranch lands since the vegetation classes include grass and oak woodlands that may not be grazed. Agriculture (farms) is probably under-represented as the mapping likely does not include smaller croplands and animal production facilities.

The second source of information used to determine the area and size of working landscapes is the USDA's 2007 Census of Agriculture<sup>2</sup>. The 2007 Census of Agriculture data is available by county. Therefore, the comparisons made in this report are between the counties fully within the Region versus the counties that are partly within the Region. Detailed information on the potential acres of agriculture and ranches, area in agriculture and ranches, and number of acres by common crop types found in the Sierra are available in [Appendix A](#).

Based on the Census data, there were over 1.4 million acres in agriculture and ranches in the counties fully within the Region and over 8.4 million acres in the counties partly within the Region in 2007 ([see Figure 1](#)). Since the total number of acres of working landscapes in 2007 statewide was over 25.3 million,<sup>3</sup> the 22 counties fully or partly in the Region accounted for 39 percent of the State's working landscapes. However, most of the acres of working landscapes within these 22 counties were outside the SNC boundary as indicated by the fact that only 4.7 million acres of potential working landscapes were identified using the vegetation mapping, which only includes the portion of each county within the Region<sup>4</sup>.

Of the counties fully or partly in the Region, Madera, Fresno, and Tulare Counties have the highest percent of private land in working landscapes, exceeding 70 percent in all three counties. In contrast, the percent of private lands in working landscapes was the least in the central Sierra in Nevada, Placer and El Dorado Counties. These counties have the largest populations and highest densities (185 people per square mile of private land) and have more residential, commercial and urban development. Between the 2000 and 2010, Placer County's population increased by 40 percent, El Dorado County's population grew by 15 percent and Nevada County's population went up by 8 percent.

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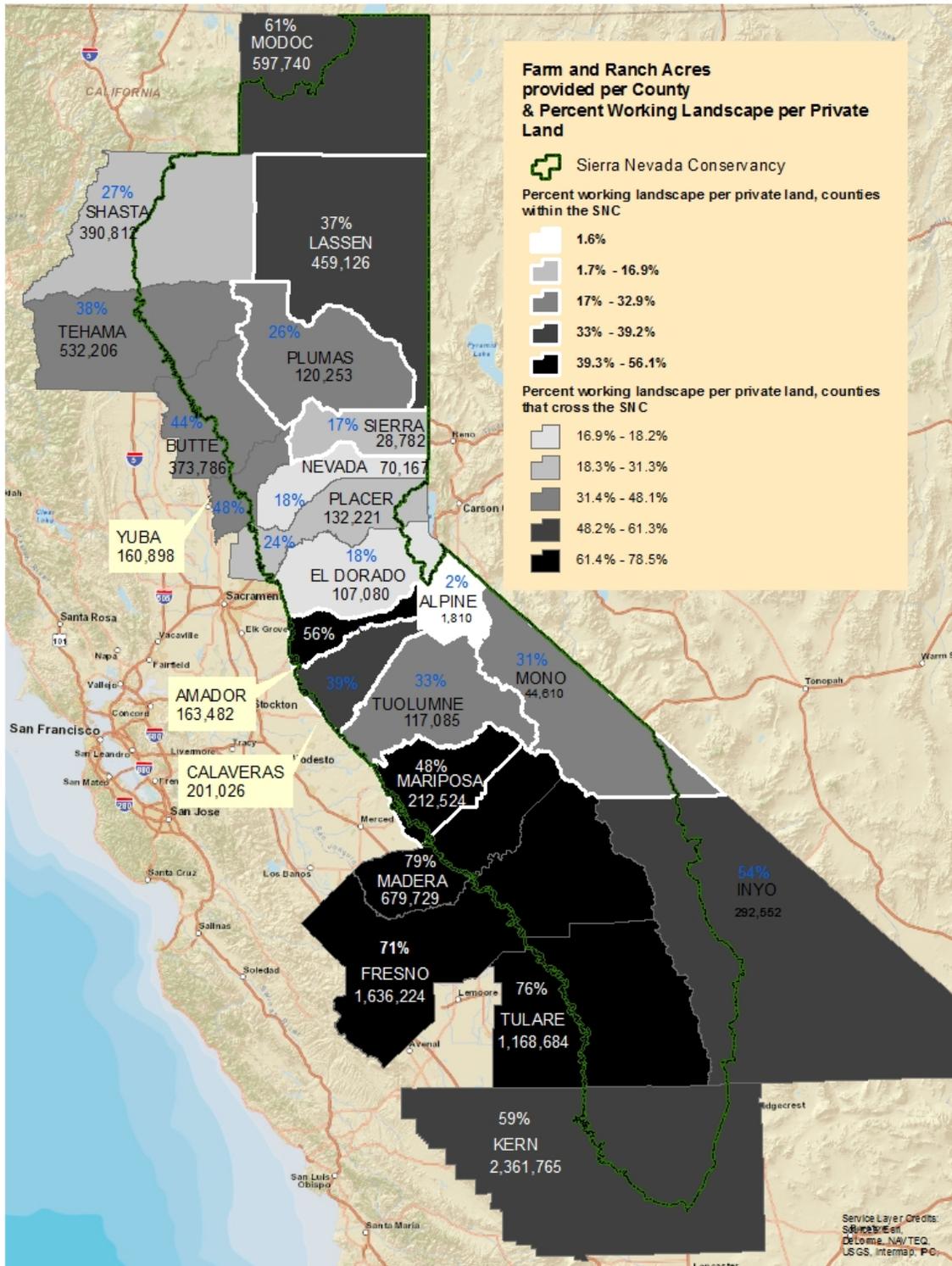
<sup>1</sup> Lands classified by CalVeg as grain and crop agriculture were identified as agriculture in this report. Ranches were identified as lands classified by CalVeg as annual grasses and forbs, perennial grasses and forbs, and oak woodlands, which is inclusive of native rangelands and irrigated pasture lands.

<sup>2</sup> The USDA requires all agriculture and ranch operators, regardless of the scale of operation, to complete an agricultural census every five years. Data are made available by State, County and Zip Code .

<sup>3</sup> According to CDFA crop report figures, there were 25.4 million acres in agriculture and rangeland in 2012, indicating there were no changes in the number of acres in California since the 2007 Census.

<sup>4</sup> Although only the South Central Subregion may be compared with the potential working landscapes acreages since these counties are fully within the Region, the two datasets appear to be fairly consistent. The potential or mapped acres of working landscapes in the South Central Subregion were 775,792 acres compared to the 694,117 acres reported by the respondents of the 2007 Census of Agriculture. These figures are fairly close when considering the majority of oak woodland occurring on private land is categorized as potential rangeland and that the total number of acres in working landscapes reported by respondents of the Census can vary significantly between years.

Figure 1. Acres of land in Agriculture and Ranches, 2007 Census of Agriculture



As shown in Figure 2, potential ranch land dominates in the Sierra. A total of 4,309,764 acres were identified as potential ranch lands in the Region, which is 46 percent of the private land in the Region<sup>5</sup> (GreenInfo Network, 2013). There were approximately 16 million acres of ranch lands in California in 2007.

While the vegetation mapping only identified potential ranch land, the census data confirm that ranches were the dominant working landscape in the Sierra in 2007. Amador County had 51 percent of private land in ranches while Mariposa County had 47 percent, which were the highest percentages for counties fully within the Region. For counties that are partly within the Region, Inyo had the greatest proportion of private land in ranches at 53 percent followed by Modoc at 46 percent.

A total of 363,379-acres were identified as potential agriculture (farms) in the Region, which represents 4 percent of all private lands in the Region. Statewide there were over 8 million acres in agriculture in 2007. Figure 2 shows that areas of potential agriculture within the Sierra are concentrated in the North and North Central Subregions, which account for 88 percent of the total potential agriculture in the Region. Sixteen percent of the private land in these Subregions is potential agriculture. To corroborate these findings, we looked at the 15 counties where zoning data was available and found a high degree of agreement between the areas we identified as potential agriculture and those zoned for agriculture. Based on the available data, the zoning information demonstrates that areas identified as potential agriculture are generally zoned for this use. Although a small percentage of acres identified as potential agriculture were zoned for other land uses, none of the lands were zoned residential.

From the Central Subregion south along the foothills of the western Sierra, there is less than one percent of private land in potential agriculture. This area has less suitable conditions for agriculture due to the topography, soil conditions and availability of water. The East Subregion has four percent or 9,549-acres in potential agriculture, which can be attributed to the Subregion's flatter valleys and access to water.

Looking at the census data, Lassen County had the leading number of acres in agriculture for the counties fully within the Region at 82,567-acres in 2007. The acres of land in agriculture showed a trend of largest to smallest from north to south. After Lassen County, the greatest number of acres in agriculture was in Plumas County at 18,487. Agriculture is more uncommon in the Sierra due to the more rugged terrain, rockier soil conditions, colder winter conditions and lack of access to irrigated water (Kenny, Barber, Hutson, Linsey, Lovelace, & Maupin, 2009) in comparison with the Sacramento and San Joaquin Valleys.

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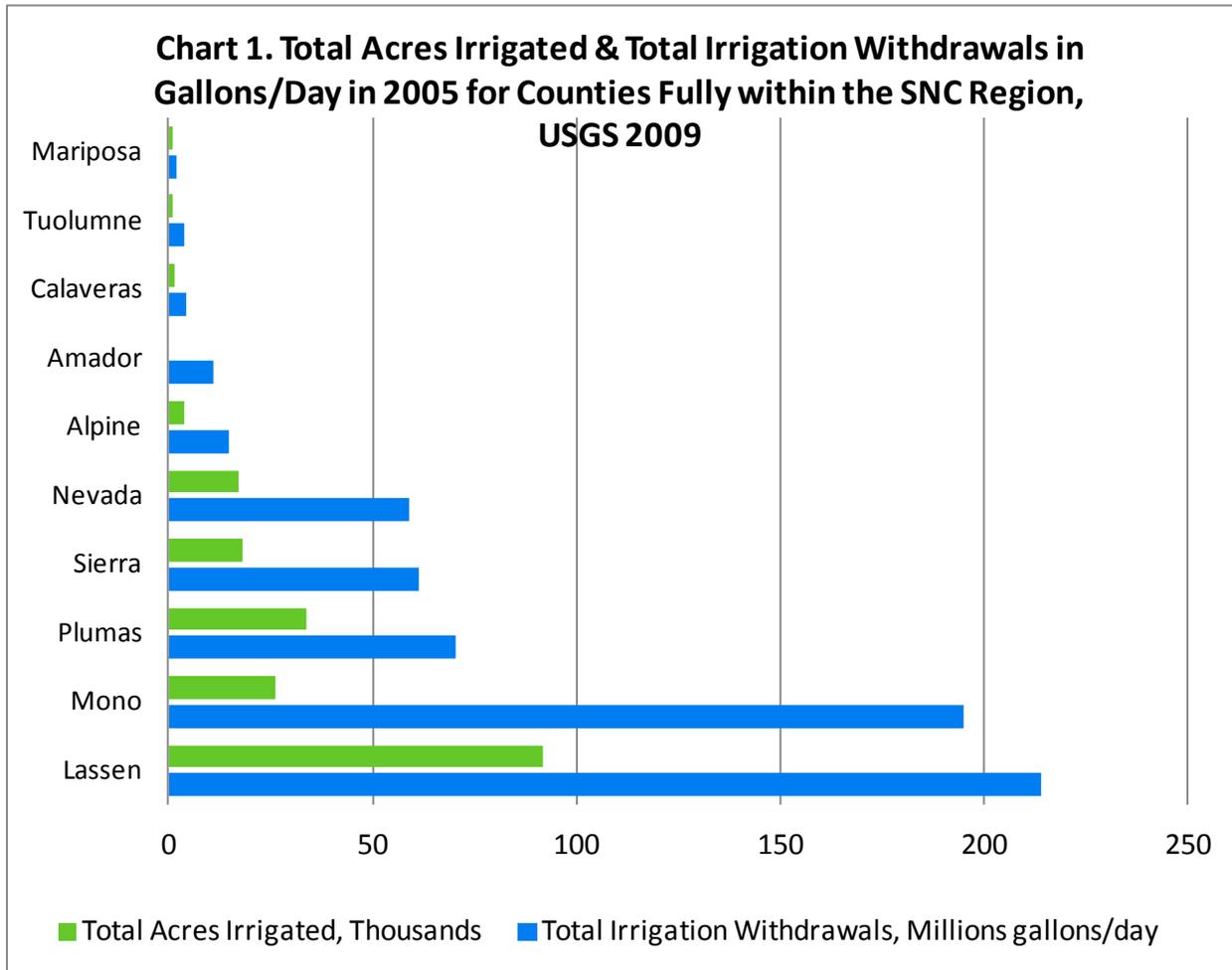
<sup>5</sup> The California Protected Areas Database version 1.9 was used to calculate the total acres of private land in each County

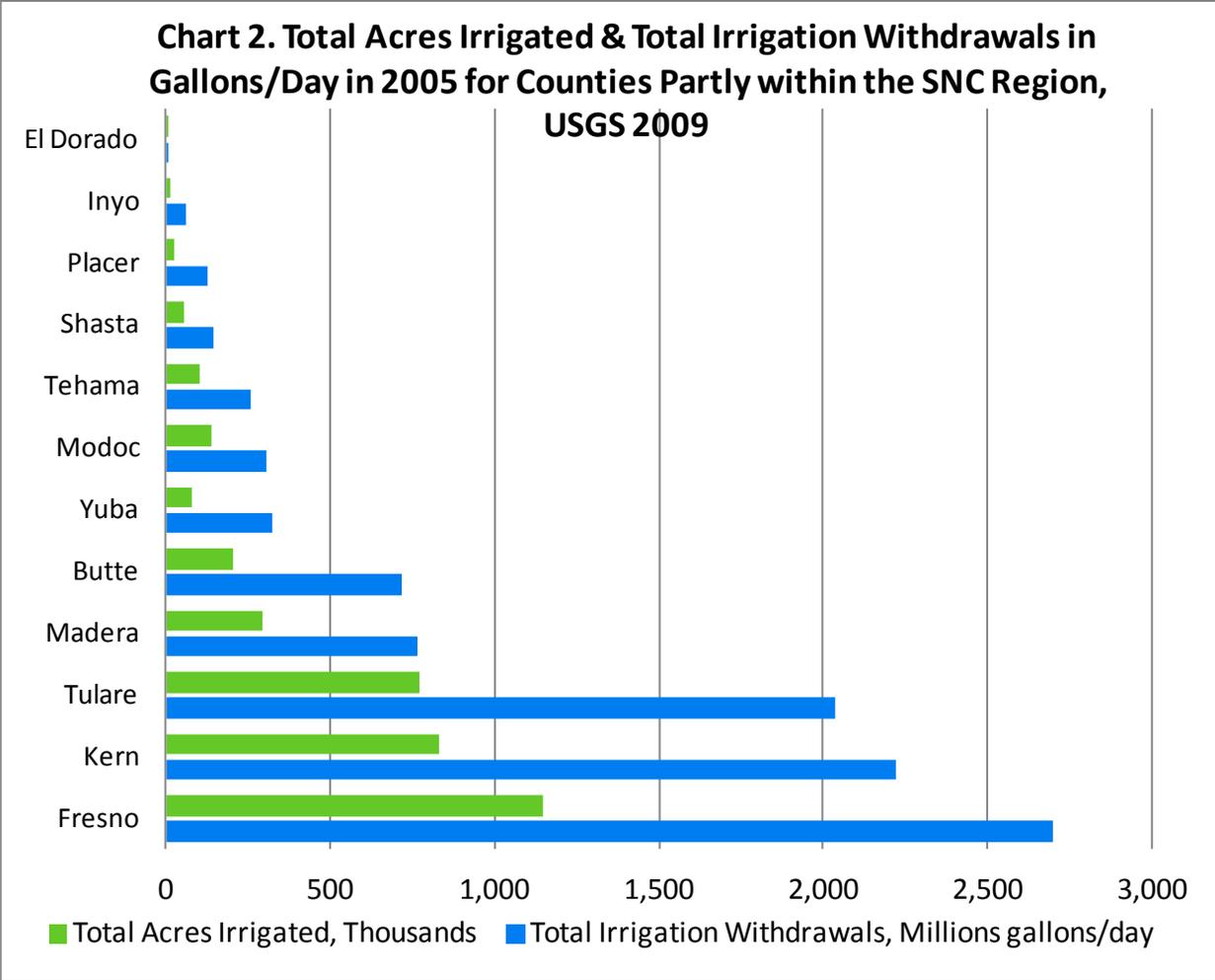
Figure 2. Location of potential agriculture and ranches in the SNC Region



### Irrigated Land

Irrigation allows crops to be grown throughout semi-arid California including the Sierra Nevada. Access to irrigated water allows a greater diversity of crop types to be grown in the Region and it can significantly increase the overall economic productivity of farms. The number of irrigated acres and millions of gallons of water used for irrigation per day was collected for the counties within the Region (Kenny, Barber, Hutson, Linsey, Lovelace, & Maupin, 2009). Chart 1 shows the irrigated water use for the counties fully within the Region, and Chart 2 shows the counties that are partly within the Region.



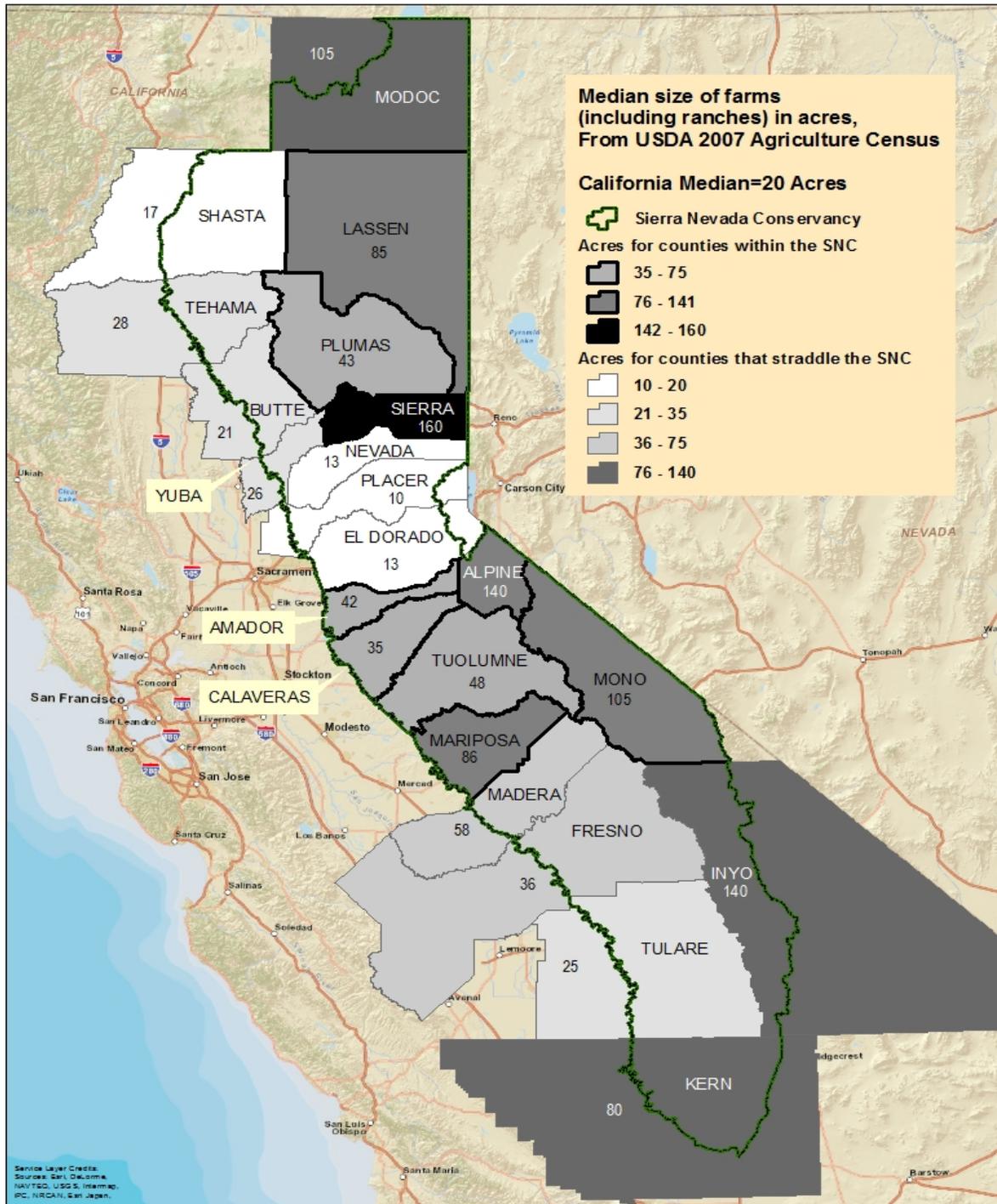


Although the counties fully within the Region contribute a significant amount of water supply to the State, only about 194,000-acres were irrigated in the counties fully within the Region in 2005, which is two percent of the total irrigated land in California. The counties partly within the Region irrigated almost 3.7 million acres, which was 46 percent of the 8 million acres of irrigated land in California.

### Median Farm Size

As shown in Figure 3, the median farm and ranch size for counties fully within the Region varied from 35 to 160 acres and from 10 to 140 acres for counties partly within the Region. The median farm size in California in 2007<sup>6</sup> was 20-acres while the average farm size was 313 acres.

**Figure 3. Median size of farms and ranches in the Region, 2007 Census of Agriculture**



<sup>6</sup> The California Department of Food and Agriculture reported that the median farm size was 312 acres in 2011 indicating that average farm size has not changed since 2007.

Figure 3 shows that the counties north of Alpine that extend West into the Sacramento Valley all had a median farm and ranch size less than 29-acres in 2007, which was higher than the State median, yet significantly smaller than all of the counties in the Region to the south. Of particular note, Nevada, Placer, and El Dorado Counties had the smallest median farm and ranch size at 13-acres or less. These counties also had the smallest percent of private land in working landscapes. Modoc County was the exception to the smaller median farm and ranch size with a 105-acre average. This is due to the fact that ranches made up a much higher percentage of private land (46.4 percent) than farms (15 percent).

In the South Central Subregion, ranches were the more widespread working landscape; therefore the overall median farm and ranch size would be expected to be greater. However, the median farm and ranch size ranged from 36 to 86 acres from north to south due to a large number of small farms growing a variety of crop types (Amador County Agricultural Commissioner, 2007; Calaveras County Agricultural Commissioner, 2007; Tuolumne County Agricultural Commissioner, 2007; Mariposa County Agricultural Commissioner, 2007)

The median farm and ranch size in the East Subregion was the largest of any Subregion. The large median farm and ranch size in the Eastern Sierra is not unexpected, native pasture land and forage production make up the majority of total agricultural production in this subregion (California Department of Food and Agriculture, 2013).

## Number of Working Landscapes

The number of working landscapes (farms and ranches) in the counties fully and partly within the Region was collected from the 2007 Census of Agriculture (**United States Department of Agriculture, 2009**). The counties fully within the Region had 3,304 working landscapes compared to 24,606 in the counties partly within the Region. California as a whole had 81,033 farms and ranches in 2007 and led the nation in terms of the number of different commodities produced in 2011 (**California Department of Food and Agriculture, 2013**). The smaller number of working landscapes in the counties fully within the Region is not unexpected since ranches make up the majority of working landscapes in the counties within the Region, and ranches are typically significantly larger in size than farms. Ranches tend to be greatest in size when livestock are grazed on native pasture land, which is common in the Sierra particularly further south in the western foothills where there is less access to irrigated water (**Kenny, Barber, Hutson, Linsey, Lovelace, & Maupin, 2009**).

## Types of Agricultural Production

The Region supports a variety of different working landscapes, but the leading types of working landscapes are associated with livestock and forage production. The total number of working landscapes, number by common crop type and average acreage for the crops commonly grown in the Sierra in 2007 is found in [Appendix B](#), which was collected from the 2007 Census of Agriculture. The 2007 and 2011 Crop Reports from the counties with available reports were examined to ascertain crop and animal production types in cases where the Census did not report these specifics<sup>7</sup>. Some key findings from the data include:

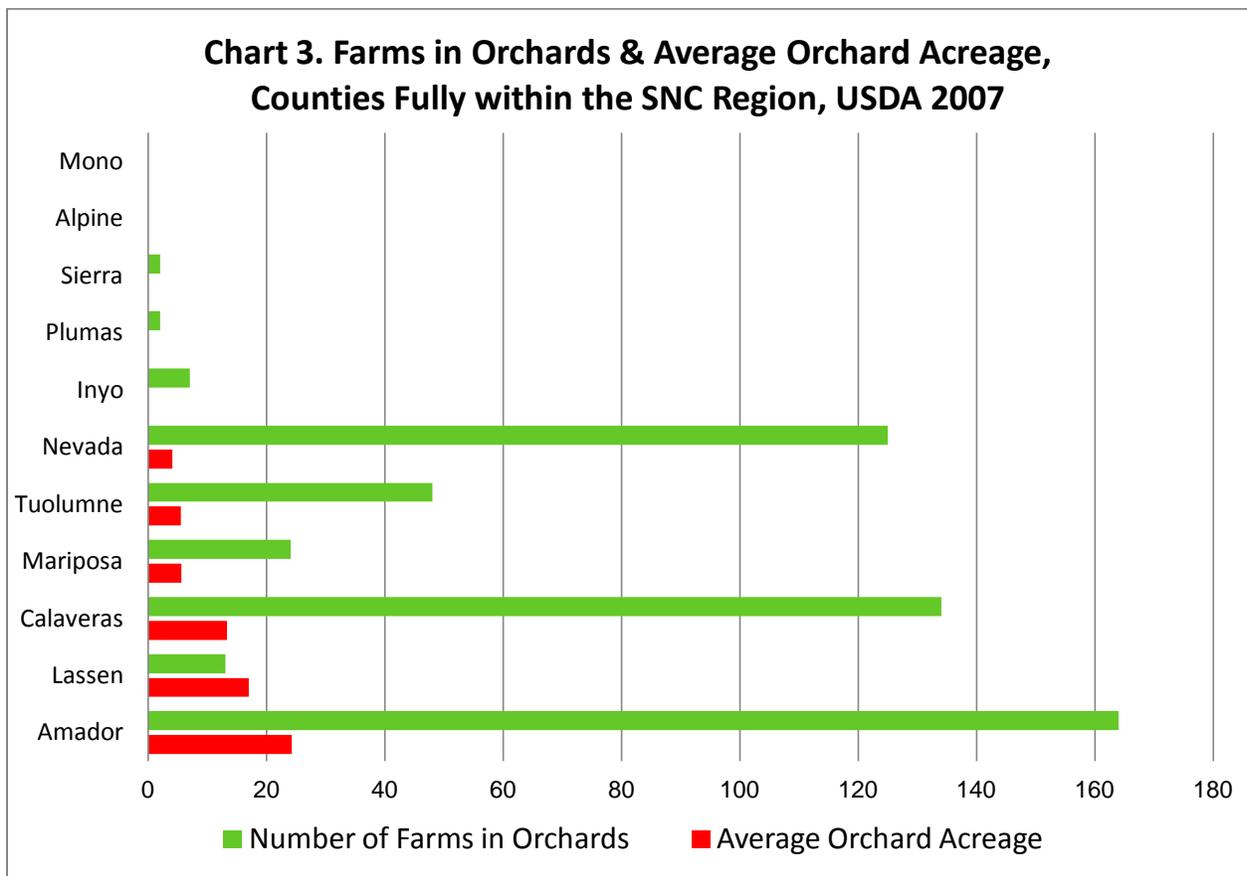
- Cattle and Calf Operations were one of the most common types of working landscapes in the Region. It was also one of the top ten grossing agricultural products in all 22 Counties in 2011. There were 1,407 Cattle and Calf Operations in the counties fully within the Region and 5,506 in the counties partly within the Region in 2007. Counties in the South Subregion dominated with 2,574 operations; many of these were located in the foothills of the southern Sierra where the vegetation mapping shows a predominance of potential ranch land. California as a whole had 16,638 Cattle and Calf operations.
- Ranches and field crops were more common than fruit, nut, and vegetable crop farms in the counties within the Region in 2007. The type of farms present in each county was closely associated to the availability of irrigated water. As shown in Chart 1, Mariposa County had the least amount of irrigated water available and also has the smallest acreage of crop types.
- Forage production is one of the more common agricultural practices in the counties fully within the Region, which complements the large number of ranches. Of the counties partly within the Region, Modoc and all the counties in the South Subregion had both the largest average acreage in forage as well as the largest number of farms producing forage.
- Significant regional differences exist in the average acreage and number of orchards (fruit tree and vineyard crops) in the Region. Counties in the South Subregion were the largest nut and

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<sup>7</sup> Modoc County has not produced a Crop Report since 2008 and does not have their past reports available. Therefore, the California Department of Food and Agriculture's (CDFA) California Agricultural Statistical Data was examined to acquire statistics on Modoc County as well as Statewide trends (California Department of Food and Agriculture, 2013).

grape producing regions of the country. This Subregion had 9,538 farms in orchards compared to 3,082 farms in orchards in the remaining counties in the Region. However, the majority of these orchards are found outside the Region in the San Joaquin Valley. As seen in Chart 3, looking at counties fully within the Region, orchards were most common in the South Central Subregion and their average acreage was small.

- The number of farms with harvested croplands (i.e. fruit, nut, vegetable, and forage crops) in the counties fully within the Region in 2007 was 1,001, which is significantly different from the 15,875 farms with harvested cropland in the counties partly within the Region. Of the counties fully within the Region, Lassen County had by far the greatest number of harvested acres (46,908) and Mariposa County had the smallest number of harvested acres (286). The harvested cropland values were in alignment with the irrigated acres for the respective counties. Counties that had access to irrigated acres had more harvested cropland. Once again, counties in the South Subregion led the counties partly in the Region in the number of harvested acres. These counties made up 34 percent of the State's total harvested acres, which was over 7.6 million. Fresno County had 978,948 harvested acres, which made up 25 percent of the County's total land area.



## Economic Productivity

### Total Agricultural Commodities Sold

As shown in Table 1, the counties fully within the Region contributed over \$317 million to the State's total gross agricultural production (both farms and ranches) of \$43.5 billion in 2011, while the counties partly within the Region produced almost \$21 billion. Lassen, Mono and Mariposa Counties led the total gross value of agricultural products of the counties fully within the Region. Kern, Fresno, Madera and Tulare Counties, all of which extend west into the San Joaquin Valley outside of the Region, made up 95% of the total gross value of agricultural products from the counties partly within the Region. Appendix C provides the leading commodities by county, the Cattle and Calf and Hay and Pasture Sales, Fruit, Nut, and Vegetable Sales, and number of farm and ranch operators.

<b>Table 1. Total Agricultural Production and Statewide County Rank</b>		
	<b>Statewide Rank</b>	<b>Total Agricultural Production</b>
<b>Counties Fully within the Region</b>		
Lassen	39	\$89,539,000
Mono	44	\$53,068,000
Mariposa	48	\$30,975,000
Amador	49	\$28,511,000
Tuolumne	51	\$22,721,000
Plumas	52	\$20,019,000
Calaveras	53	\$19,637,000
Nevada	54	\$14,924,000
Alpine	57	\$5,311,000
Sierra	56	\$6,200,000
<b>Counties Partly within the Region</b>		
Fresno	1	\$6,884,582,000
Tulare	2	\$5,629,264,000
Kern	3	\$5,364,363,000
Madera	12	\$1,569,239,000
Butte	17	\$635,707,000
Tehama	29	\$245,672,000
Yuba	30	\$207,984,000
Modoc	37	\$107,009,000
Shasta	40	\$89,060,000
Placer	43	\$62,304,000
El Dorado	47	\$31,338,000
Inyo	50	\$26,271,000
Source: California Agricultural Statistics Review, 2011		

Fruit, Nut, and Vegetable Sales, and number of farm and ranch operators.

While geography, topography and environmental conditions largely dictate the type of agricultural production that can occur within the Region, irrigation is one of the most important drivers of overall agricultural productivity. Lassen and Mono Counties were the top grossing agricultural counties fully within the Region in 2011, and they also had the highest irrigated water use<sup>8</sup> in 2005 (Kenny, Barber, Hutson, Linsey, Lovelace, & Maupin, 2009). As shown in Table 1, all of the counties fully within the Region rank at the bottom of counties statewide in terms of total gross agricultural production. The number of irrigated acres in these counties in 2005 was small compared to the rest of the State (194,870-acres for counties fully within the Sierra compared to 9,050,310-acres Statewide) and decreased from north to south. Fresno, Kern, Tulare, and Madera Counties had the highest irrigated water use, respectively, and had the largest crop sales.

<sup>8</sup> The 2005 irrigated water use data can be fairly compared to the economic production values of 2011 as significant shifts have not occurred in the last ten years regarding irrigated water use in the Sierra.

## **Leading Agricultural Sales**

Key findings include:

- Cattle and Calves and Hay and Pasture operations were the leading agricultural sales in the counties fully within the Region. In these counties, the total sales of these two products was over \$223 million or 74 percent of the total gross agricultural production for counties fully within the Region in 2011. The exception was Amador County where the top grossing crop was wine grapes. Cattle and Calves or overall Livestock Products were one of the top ten grossing commodities for all 22 counties in the Region.
- The number one agricultural commodity for both Lassen and Mono Counties was Hay and Pasture (irrigated) sales, which placed these two counties in the top of all counties fully within the Region in terms of total gross agricultural production. Between 2010 and 2011, the value of Hay sales increased by 69 percent, which significantly benefited the total agricultural production for Lassen and Mono Counties.
- The contribution of fruit, nut and vegetable crops to the total gross value of all agricultural commodities was very low in the counties fully within the Region compared to the counties partly within the Region.
- In the South Subregion, Almond and Milk products were either the first and/or second leading sales in each county. The value of both Almond and Milk products has increased significantly in the last five years due to international demand and exports from California.

## **Net Farm Income & Government Payments**

As shown in Table 2, the difference in total net farm and ranch income between the counties fully within the Region, (\$6,564,000), compared to the counties partly within the Region (\$2,953,987,000) is staggering. All of the counties in the South Central Subregion had negative net cash farm and ranch income based on the 2007 Census data and these counties received the lowest amount of government payments with the exception of Sierra County. They also had the lowest irrigated water use of all the counties within the Region. Lassen and Mono Counties had the largest net cash farm and ranch incomes among counties fully within the SNC Region. These counties also had the highest irrigated water use among these counties in 2005 and were thus able to produce more hay and pasture crops, which contributed to higher crop values and overall improved net cash performance in 2007.

Looking at the counties partly in the Region, Tulare, Kern, and Fresno Counties had the largest net cash farm and ranch income and received the largest government payments. They also had the highest irrigated water use. Placer, Shasta, and El Dorado Counties all had negative net cash farm income and they received the smallest amount of government payments of the counties partly within the Region; they also had the lowest irrigated water use of all the counties partly within the Region. Government payments may make a difference in whether or not the net cash farm income per farm is profitable, but use of irrigation also appears to be an important component of net cash farm income.

**Table 2. Net Cash Farm and Ranch Income and Government Payments by County**

	<b>Net Cash Income</b>	<b>Average Net Cash Income</b>	<b>Average Government Payment</b>	<b>Total Government Payments</b>
<b>Counties fully within the SNC Region</b>				
<b>Alpine</b>	Not reported	Not reported	Not reported	Not reported
<b>Lassen</b>	\$5,293,000	\$11,531	\$349	\$160,000
<b>Mono</b>	\$3,268,000	\$38,901	Not reported	Not reported
<b>Sierra</b>	\$145,000	\$2,899	\$940	\$47,000
<b>Plumas</b>	\$21,000	\$146	Not reported	Not reported
<b>Mariposa</b>	-\$1,005,000	-\$3,326	\$434	\$131,000
<b>Tuolumne</b>	-\$2,195,000	-\$5,997	\$101	\$37,000
<b>Amador</b>	-\$2,299,000	-\$4,800	\$190	\$91,000
<b>Calaveras</b>	-\$2,731,000	-\$4,328	\$78	\$49,000
<b>Nevada</b>	-\$7,061,000	-\$10,233	\$329	\$227,000
<b>Totals</b>	<b>(\$6,564,000)</b>	<b>\$24,793</b>	<b>\$346</b>	<b>\$504,767</b>
<b>Counties partly within the SNC Region</b>				
<b>Tulare</b>	\$871,303,000	\$166,279	\$3,881	\$20,335,000
<b>Kern</b>	\$869,363,000	\$410,658	\$12,917	\$27,346,000
<b>Fresno</b>	\$798,561,000	\$131,321	\$4,068	\$24,737,000
<b>Madera</b>	\$273,852,000	\$160,335	\$2,698	\$4,608,000
<b>Butte</b>	\$104,630,000	\$51,089	\$7,217	\$14,780,000
<b>Tehama</b>	\$25,791,000	\$14,721	\$608	\$1,065,000
<b>Yuba</b>	\$23,181,000	\$27,997	\$6,233	\$5,161,000
<b>Modoc</b>	\$14,408,000	\$32,161	\$1,842	\$825,000
<b>Inyo</b>	\$3,809,000	\$40,524	Not reported	Not reported
<b>Placer</b>	-\$3,585,000	-\$2,409	\$1,907	\$2,838,000
<b>Shasta</b>	-\$6,084,000	-\$4,130	\$171	\$252,000
<b>El Dorado</b>	-\$10,372,000	-\$8,180	\$118	\$149,000
<b>Totals</b>	<b>\$2,964,857,000</b>	<b>\$1,020,366</b>	<b>\$3,787</b>	<b>\$1,989,376</b>
Source: 2007 Census of Agriculture; USDA 2009				

**Public Grazing Allotments**

The practice of Sierra ranchers moving cattle from the grasslands and foothills in the winter to the higher elevations of the Sierra in the summer has been occurring since the 1850s (Sualk, 2002). Today, cattle grazing in the higher elevations occurs primarily on public grazing allotments on lands managed by the Forest Service and Bureau of Land Management. In the Region, there are 3,480,198 acres of grazing allotments on lands managed by the Bureau of Land Management (Bureau of Land Management, 2011).

On lands managed by the US Forest Service, there are 8,648,783 acres of grazing allotments; 6,280,415 acres are active, and 1,394,827 acres are vacant.

In 2002 central Sierra ranchers were surveyed and asked what the economic contribution and importance of public grazing allotments were to their overall production. The majority of respondents stated that half of their income is attributed to having allotments (Huntsinger, 2013). The economic contribution of public grazing allotments to the total agricultural production in the Region is not currently known.

### **Number of Farm and Ranch Operators**

In 2007, there were 14,485 farm and ranch operators in all 22 counties fully and partly in the Region who stated that farming or ranching was their primary occupation, while 13,270 farm and ranch operations identified another occupation as their primary occupation. Sierra County led the counties fully within the Region with the most farm operators with their primary occupation as farming. The majority of farm operators in Alpine, Nevada, El Dorado, Mariposa, and Placer Counties had a different primary occupation other than farming. These Counties also had the lowest net farm income for agriculture and ranches as reported in Table 2.

### **Preserving Working Landscapes in the Sierra**

Working landscapes are one of the most common land uses on private land in the Sierra, particularly in the foothills of the western Sierra and the valleys of the eastern Sierra. Farms and ranches contribute to the overall economic wellbeing and preserve the culture and aesthetic of the Region. They provide and protect habitats for a number of native species and impart valuable ecosystem services to the State.

Ranches are generally larger than farms and preserve a diversity of native landscapes. The ranches in the Sierra provide enormous ecosystem services beyond the calculated agricultural production reported. These working landscapes assist in preserving oak woodlands, store carbon, cycle nutrients, capture runoff, and provide habitat for many sensitive species. Ranches are of critical importance to the conservation of many habitats and the species dependent upon them in the foothills. Wetzler et al. 2012 found that 72 percent of the Williamson Act contracts in rangeland in California are critical for conservation, and the majority of these lands occur in the foothills that surround the San Joaquin and Sacramento Valleys. Farms produce food and also provide critically important habitats such as ephemeral wetlands and streams for a number of rare, threatened and endangered species.

While many programs assist in the preservation of working landscapes (see Appendix D: Programs that Aid in the Preservation of Working Landscapes), working landscapes face significant threats. The Farmland Mapping and Monitoring Program (FMMP) within the Department of Conservation monitors changes in agriculture and rangeland in counties in California where working landscapes make up a significant proportion of private lands. Chart 13 in Appendix D shows the conversion of farms and ranches to other land uses between 2002 and 2008 for the counties the FMMP monitors in the Region<sup>9</sup>. Kern and Fresno counties experienced the largest change in acreage converted to other land uses during this time. However, Placer and El Dorado Counties had the greatest percent change in conversion. Mariposa and Sierra Counties are the only counties fully within the Region that are monitored by the

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<sup>9</sup> The first year the mapping program had a standardized system to consistently record change within and across the counties was in 2002; therefore, the 2002 to 2008 time period was used to evaluate the conversion of working landscapes to other land uses.

FMMP and these counties uniformly experienced very little land use conversion from working landscapes (primarily ranches) since 2002. In contrast, Fresno, Tulare, and Kern Counties had more conversion of farms to other land uses than ranches to other land uses.

The largest working landscape conservation program in the Sierra and the State is the Land Conservation Act of 1965 or the Williamson Act, which allows local governments in California to enter into contracts with private landowners who agree to keep land in agricultural and related open space uses in return for a reduced property tax assessment. The State provided local governments with an annual subvention for the lost property tax revenues until Fiscal Year 2008/2009 when revenue shortfalls resulted in the program being reduced to \$1,000 per year, statewide.

Since California reduced the subvention funding to local governments for the Williamson Act, the Williamson Act has been continued by participating counties through Assembly Bill 1265 (2011). This law allows local governments to continue Williamson Act contracts while being able to collect some of the foregone tax revenues<sup>10</sup>. This law went into effect in 2011 and thus far all the SNC counties that operated Williamson Act programs have continued accepting new contracts with the exception of Modoc and Plumas Counties<sup>11</sup>. It is unclear if Sierra counties will be able to renew their existing contracts once the contract periods end. If the counties who operate Williamson Act programs are unable to maintain their programs, some research indicates that ranchers who have low household income and are wholly dependent upon their farm operation for their income will likely feel compelled to sell their ranches. Researchers (Wetzel, Lacher, Swezey, Moffitt, & Manning, 2012) surveyed ranch owners regarding how the loss of the Williamson Act would affect whether they could continue to own and operate their ranches. The researchers concluded that 71 percent of ranchers who completed the survey had annual profits less than or equal to their Williamson Act tax savings in 2009. If the Williamson Act program were eliminated in their county, 37 percent of the ranchers who responded to the survey would attempt to sell some or all of their land.

Table 3 shows the acreage of Williamson Act contracts in participating counties within the Region and provides the change in prime (lands in crop production) and non-prime (lands in native pasture/rangeland) contracts between 2006 and 2011. In 2011, there were 994,201 acres or approximately 70 percent of the working landscapes in counties fully within the Region in Williamson Act contracts. In the counties partially within the Region, there were 5,972,286 acres or about 71 percent of the working landscapes in Williamson Act contracts.

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<sup>10</sup> Counties may reduce contract periods by 10 percent and increase assessed value by 10 percent or the difference between Proposition 13 and the Williamson Act assessed land values.

<sup>11</sup> Inyo and Yuba Counties do not participate in the Williamson Act program.

**Table 3. Williamson Act Program in the SNC, 2011 Department of Conservation**

County	Total Williamson Act Acreage 2011	Change in Prime Acres, 2006-2011	Percent Change in Prime Acres	Change in Non-Prime Acres, 2006-2011	Percent Change in Non-Prime, 2006-2011	Program
Modoc	127,629	17,764 acres may not be renewed		109,865 acres may not be renewed		New Contracts Not Accepted
Lassen	315,031	472	3%	428,978	4%	Active
Shasta	187,179	6,846	41%	3,222	2%	Active
Butte	220,175	4,276	4%	155	<1%	Active
Plumas	78,400	5,576 acres may not be renewed		72,824 acres may not be renewed		New Contracts Not Accepted
Sierra	34,818	-1	<1%	-1,725	-5%	Active
Tehama	789,341	2,191	4%			Active
El Dorado	34,021	168	8%	451,228	-2%	Active
Nevada	4,237	18	1%	403	11%	Active
Placer	41,822	716	5%	26,559	-9%	Active
Yuba	N/A	N/A	N/A	N/A	N/A	No program
Amador	92,777	266	5%	-2,369	<-1%	Active
Calaveras	144,018	-116	-20%	26,293	22%	Active
Mariposa	207,321	No acres reported	No change	-96,824	1%	Active
Tuolumne	121836 (2012 data)	2,221	2%; however 15,719 in non-renewal	736	1%	Active
Alpine	0	-	0%	-		Active-yet no existing contracts
Inyo	N/A	N/A	N/A	N/A	N/A	No Program

Mono	13,110	No change	No change	No non-prime acres enrolled		Active
Fresno	1,465,277	-14,505	-1%	-14,971	<-1%	Active
Kern	1,540,204	-6,673	-1%	-70,908	<-1%	Active
Madera	476,070	-3,902	-2%	-95,043	-1%	Active
Tulare	1,086,331	-655	<0%	367	<1%	Active

Several counties in the Sierra are currently discussing whether they can afford to continue to operate Williamson Act Programs. If additional counties are unable to continue accepting new contracts or renew existing contracts, the Sierra could experience conversion of its working landscapes to other land uses, particularly ranches as they are the dominant working landscape and occupy large areas of private land.

In addition to the loss of State subvention support, Senate Bill 618 authorizes property owners in Williamson Act contracts, under specific circumstances, to rescind their contract and simultaneously enter into a Solar-Use Easement. This contract would require that the solar photovoltaic facilities are used on the property for a term no less than 20 years. The program is not yet in operation, the Department of Conservation is reviewing comments received and will be implementing the program soon. It is unclear how agriculture and rangeland contracts in the Sierra would be affected by this program.

The preservation and restoration of working landscapes is largely dependent upon the economic health of individual property owners. Without programs such as the Williamson Act and other preservation and restoration initiatives, many landowners cannot afford to maintain and sustain their working landscapes in the Sierra.

**Contact Information**

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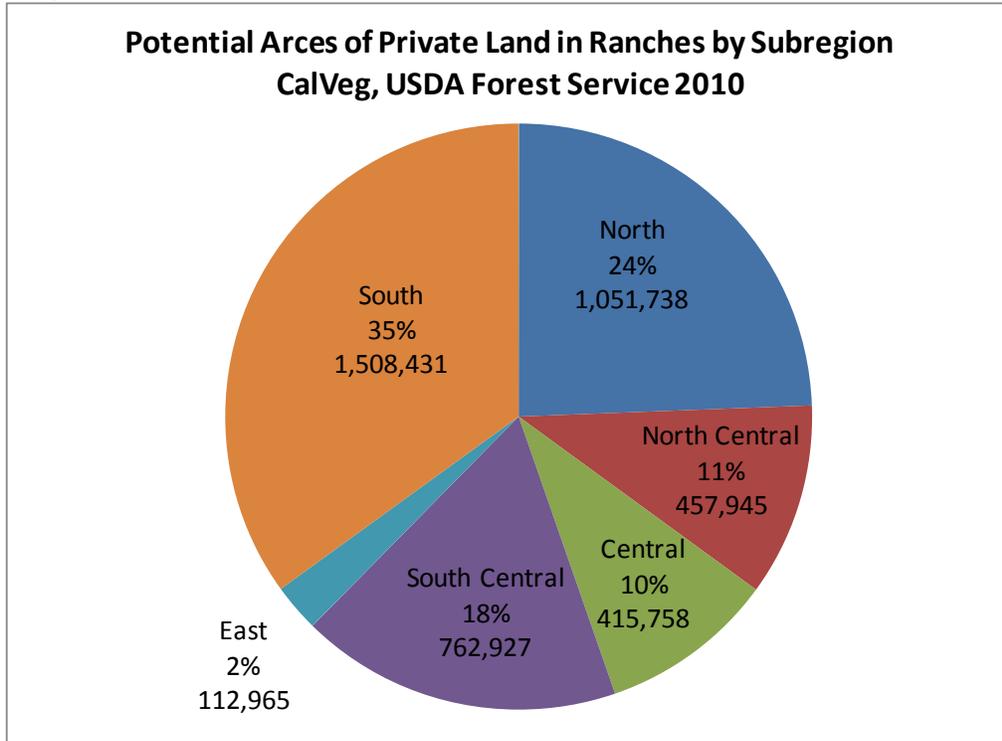
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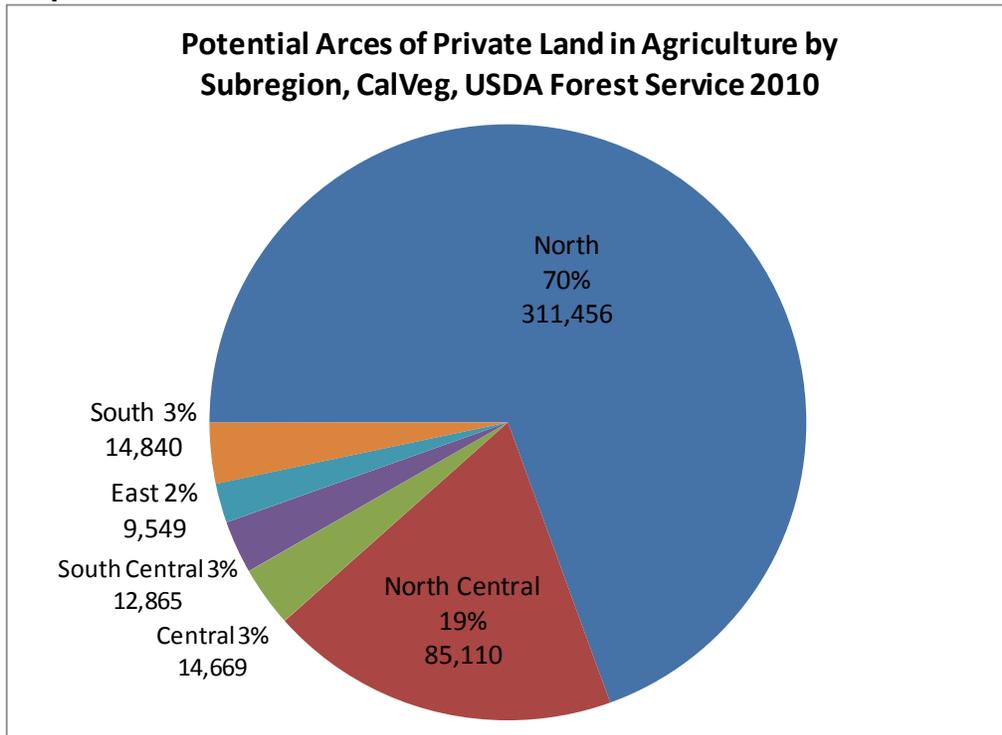
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**Appendix A - Area in Agriculture and Ranches, and Acres by Common Crop Types**

**Graph 1**



**Graph 2**



**Table 4. Area in Agriculture & Ranches, 2007 Census of Agriculture**

<b>Counties</b>	<b>Subregion</b>	<b>Acres in Private Land</b>	<b>Acres of Agriculture &amp; Ranches, Counties Fully in the Region</b>	<b>Acres of Agriculture &amp; Ranches, Counties Partly in the Region</b>	<b>Acres in Agriculture, Counties Fully in the Region</b>	<b>Acres in Agriculture, Counties Partly in the Region</b>	<b>Acres in Ranches, Counties Fully in the Region</b>	<b>Acres in Ranches, Counties Partly in the Region</b>
<b>Modoc</b>	North	974,713		597,740		145,784 (15.0%)		451,956 (46.4%)
<b>Lassen</b>	North	1,245,490	459,126		82,567 (6.6%)		376,559 (30.2%)	
<b>Shasta</b>	North	1,448,775		390,812		40,180 (2.8%)		350,632 (24.2%)
<b>Tehama</b>	North Central	1,390,771		532,206		94,214 (6.8%)		437,992 (31.5%)
<b>Plumas</b>	North Central	471,882	120,253		18,487 (3.9%)		101,766 (21.6%)	
<b>Butte</b>	North Central	852,059		373,786		222,713 (26.1%)		151,073 (17.7%)
<b>Sierra</b>	North Central	170,210	28,782		6,236 (3.7%)		22,546 (13.2%)	
<b>Yuba</b>	Central	334,818		160,898		71,009 (21.2%)		89,889 (26.8%)
<b>Nevada</b>	Central	400,428	70,167		7,301 (1.8%)		62,866 (15.7%)	
<b>Placer</b>	Central	556,460		132,221		50,334 (9.0%)		81,887 (14.7%)
<b>El Dorado</b>	Central	589,477		107,080		15,275 (2.6%)		91,805 (15.6%)
<b>Amador</b>	South Central	291,591	163,482		15,993 (5.3%)		147,489 (50.7%)	
<b>Calaveras</b>	South Central	511,218	201,026		12,097 (2.4%)		188,929 (37.0%)	

<b>Tuolumne</b>	South Central	356,303	117,085		5,622 (1.6%)		111,463 (31.3%)	
<b>Mariposa</b>	South Central	439,921	212,524		4,377 (1.0%)		208,147 (47.3%)	
<b>Alpine</b>	East	30,694	1,810		490 (1.6%)		1,320 (4.3%)	
<b>Mono</b>	East	142,695	44,610		10,479 (7.3%)		34,131 (23.9%)	
<b>Inyo</b>	East	540,938		292,552		8,261 (1.5%)		284,291 (52.6%)
<b>Madera</b>	South	865,928		679,729		290,683 (33.6%)		389,046 (44.9%)
<b>Fresno</b>	South	2,308,762		1,636,224		1,102,163 (47.7%)		534,061 (23.1%)
<b>Tulare</b>	South	1,548,526		1,168,684		638,789 (41.3%)		529,895 (34.2%)
<b>Kern</b>	South	4,023,790		2,361,765		942,827 (23.4%)		1,418,938 (35.3%)
<b>Total Acres</b>			<b>1,418,865</b>	<b>8,433,697</b>	<b>163,649</b>	<b>3,622,232</b>	<b>1,255,216</b>	<b>4,811,465</b>

**Table 5. Acres of agricultural crops grown in counties of the SNC Region, 2007 Census of Agriculture**

<b>County</b>	<b>Acres in Orchards, Counties Fully in the Region</b>	<b>Acres in Orchards, Counties Partly in the Region</b>	<b>Acres of Barley for Grain, Counties Fully in the Region</b>	<b>Acres of Barley for Grain, Counties Partly in the Region</b>	<b>Acres of Forage for Hay and Haylage etc., Counties Fully in the Region</b>	<b>Acres of Forage for Hay and Haylage etc., Counties Partly in the Region</b>
<b>Amador</b>	3,975				2,930	
<b>Calaveras</b>	1,782				786	
<b>Tuolumne</b>	264				321	
<b>Lassen</b>	220		838			
<b>Mariposa</b>	134					
<b>Inyo</b>		31				3,630
<b>Fresno</b>		471,825		6,516		96,152
<b>Alpine</b>					490	
<b>Sierra</b>					2,406	
<b>Plumas</b>					7,654	
<b>Mono</b>					8,041	
<b>Modoc</b>		52		2,724		86,967
<b>Nevada</b>	548				1,787	
<b>Placer</b>		1,525				7,654
<b>Shasta</b>		1,761				13,509
<b>El Dorado</b>		3,954				697
<b>Yuba</b>		24,082				2,824
<b>Tehama</b>		37,442		1,790		17,552
<b>Butte</b>		90,083				5,957
<b>Madera</b>		191,155		171		43,842
<b>Tulare</b>		274,351		292		155,283
<b>Kern</b>		407,208		2,376		118,340

**Table 5 Continued. Acres of agricultural crops grown in counties of the SNC Region**

<b>County</b>	<b>Acres in Oats for Grain, Counties Fully in the Region</b>	<b>Acres in Oats for Grain, Counties Partly in the Region</b>	<b>Acres in Vegetables Harvested for Sale, Counties Fully in the Region</b>	<b>Acres in Vegetables Harvested for Sale, Counties Partly in the Region</b>
<b>Amador</b>			6	
<b>Calaveras</b>			56	
<b>Tuolumne</b>			7	
<b>Lassen</b>	77		411	
<b>Mariposa</b>			2	
<b>Inyo</b>		0		
<b>Fresno</b>		2,411		195,401
<b>Alpine</b>	0			
<b>Sierra</b>				
<b>Plumas</b>			8	
<b>Mono</b>				
<b>Modoc</b>				4,152
<b>Nevada</b>			62	
<b>Placer</b>				121
<b>Shasta</b>				151
<b>El Dorado</b>				88
<b>Yuba</b>				86
<b>Tehama</b>		149		59
<b>Butte</b>				258
<b>Madera</b>		1,842		4,678
<b>Tulare</b>		823		2
<b>Kern</b>		420		83,755

**Table 5 Continued. Acres of agricultural crops grown in counties of the SNC Region**

<b>County</b>	<b>Acres of Wheat for Grain, Counties Fully in the Region</b>	<b>Acres of Wheat for Grain, Counties Partly in the Region</b>	<b>Acres of Winter Wheat for Grain, Counties Fully in the Region</b>	<b>Acres of Winter Wheat for Grain, Counties Partly in the Region</b>
<b>Amador</b>				
<b>Calaveras</b>				
<b>Tuolumne</b>				
<b>Lassen</b>	750		77	
<b>Mariposa</b>				
<b>Inyo</b>		0		0
<b>Fresno</b>		33,006		21,352
<b>Alpine</b>	0		0	
<b>Sierra</b>				
<b>Plumas</b>				
<b>Mono</b>				
<b>Modoc</b>		4,502		2,161
<b>Nevada</b>				
<b>Placer</b>				
<b>Shasta</b>				
<b>El Dorado</b>				
<b>Yuba</b>				
<b>Tehama</b>		852		
<b>Butte</b>		2,499		
<b>Madera</b>		4,292		3,219
<b>Tulare</b>		22,213		18,733
<b>Kern</b>		40,593		27,473

**Appendix B – Number of Farms and Ranches, Crop Type and Average Acreage per County**

**Table 6. Farm Number per County, 2007 Census of Agriculture**

<b>County</b>	<b>Number of Farms and Ranches, Counties Fully in the Region</b>	<b>Number of Farms and Ranches, Counties Partly in the Region</b>
<b>Alpine</b>	7	
<b>Amador</b>	479	
<b>Butte</b>		2048
<b>Calaveras</b>	631	
<b>El Dorado</b>		1268
<b>Fresno</b>		6081
<b>Inyo</b>	94	
<b>Kern</b>		2117
<b>Lassen</b>	459	
<b>Madera</b>		1708
<b>Mariposa</b>	302	
<b>Modoc</b>		448
<b>Mono</b>	84	
<b>Nevada</b>	690	
<b>Placer</b>		1488
<b>Plumas</b>	142	
<b>Shasta</b>		1473
<b>Sierra</b>	50	
<b>Tehama</b>		1752
<b>Tulare</b>		5240
<b>Tuolumne</b>	366	
<b>Yuba</b>		983

**Table 7. Number of Farms by Most Common Crop Type in the Region, 2007 Census of Agriculture**

<b>Counties</b>	<b>Farms in Cropland, Counties Fully in the Region</b>	<b>Farms in Cropland, Counties Partly in the Region</b>	<b>Farms in Orchards, Counties Fully in the Region</b>	<b>Farms in Orchards, Counties Partly in the Region</b>	<b>Farms with Vegetables Harvested for Sale, Counties Fully in the Region</b>
<b>Nevada</b>	314		125		41
<b>Calaveras</b>	298		134		22
<b>Lassen</b>	275		13		9
<b>Amador</b>	236		164		6
<b>Tuolumne</b>	121		48		11
<b>Mariposa</b>	80		24		4
<b>Plumas</b>	57		2		5
<b>Mono</b>	41		No Data		No Data
<b>Sierra</b>	29		2		
<b>Alpine</b>	4		No Data		No Data
<b>Modoc</b>		327		7	
<b>Inyo</b>		43		7	
<b>Yuba</b>		483		248	
<b>Tehama</b>		1116		651	
<b>Madera</b>		1288		1023	
<b>Shasta</b>		749		273	
<b>Butte</b>		1574		1113	
<b>Placer</b>		726		296	
<b>El Dorado</b>		794		494	
<b>Kern</b>		1449		836	
<b>Fresno</b>		964		4008	
<b>Tulare</b>		4469		3671	

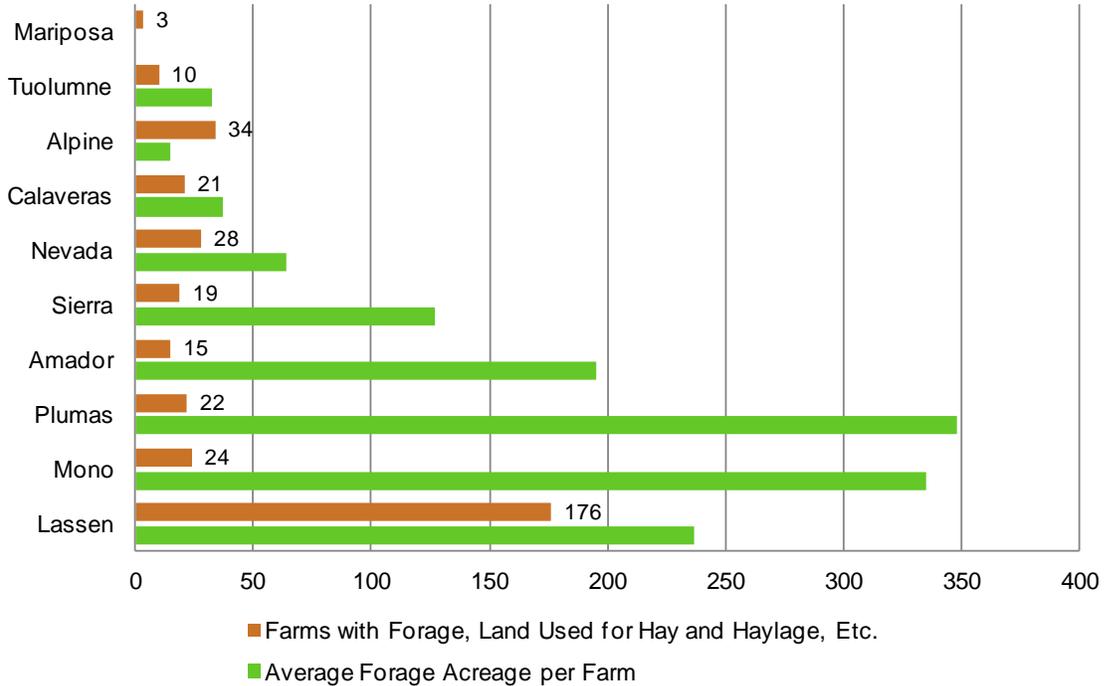
**Table 7 Continued. Number of Working Landscapes by Most Common Crop Type in the Region**

<b>Counties</b>	<b>Working Landscapes with Vegetables Harvested for Sale, Counties Partly in the Region</b>	<b>Working Landscapes with Cattle and Calves Sold, Counties Fully in the Region</b>	<b>Working Landscapes with Cattle and Calves Sold, Counties Partly in the Region</b>	<b>Working Landscapes with Forage, Land Used for Hay and Haylage etc., Counties Fully in the Region</b>	<b>Working Landscapes with Forage, Land Used for Hay and Haylage etc., Counties Partly in the Region</b>
<b>Calaveras</b>		237		21	
<b>Lassen</b>		170		176	
<b>Amador</b>		149		15	
<b>Tuolumne</b>		142		10	
<b>Mariposa</b>		146		3	
<b>Plumas</b>		49		22	
<b>Mono</b>		35		24	
<b>Sierra</b>		30		19	
<b>Alpine</b>		6		34	
<b>Modoc</b>	19		198		231
<b>Inyo</b>	5		39		14
<b>Yuba</b>	25		183		31
<b>Tehama</b>	28		479		163
<b>Madera</b>	30		301		121
<b>Shasta</b>	39		502		191
<b>Butte</b>	52		229		105
<b>Placer</b>	65		360		54
<b>El Dorado</b>	70		117		14
<b>Kern</b>	138		358		319
<b>Nevada</b>	150		28		
<b>Fresno</b>	559		597		356
<b>Tulare</b>	4414		721		487

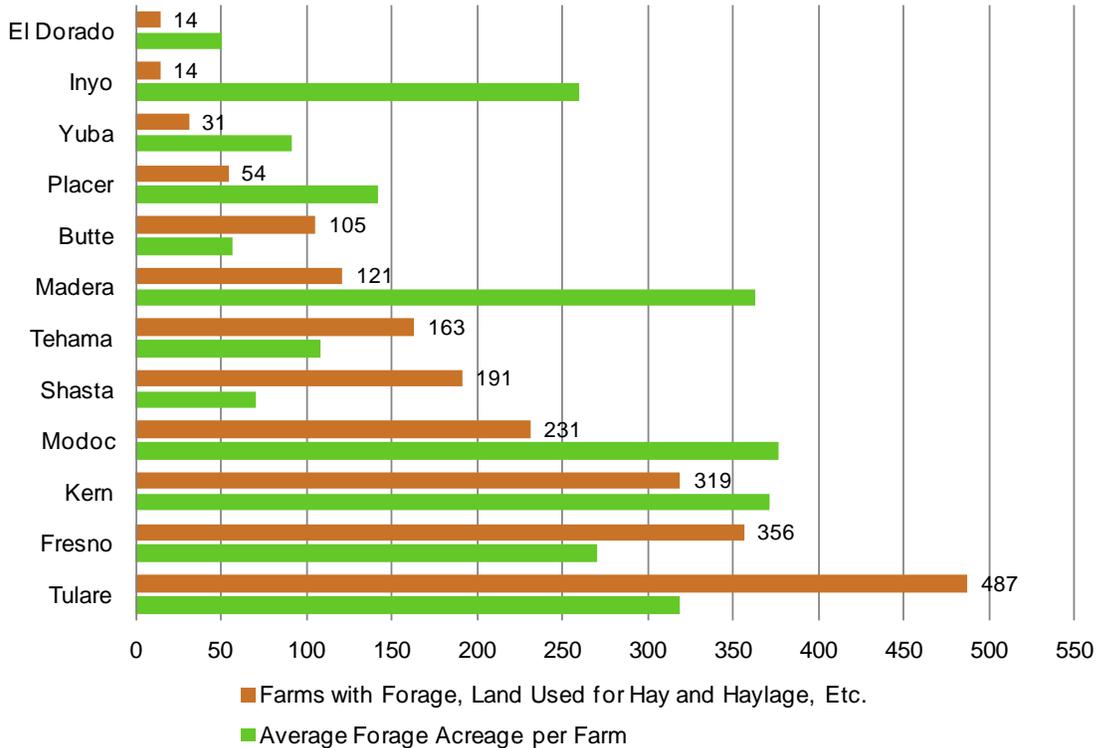
**Table 8. Cattle & Calves Operations in the Region, 2007 Census of Agriculture**

<b>Counties</b>	<b>Cattle &amp; Calf Operations Counties Fully in the Region</b>	<b>Cattle &amp; Calf Operations, Counties Partly in the Region</b>
Calaveras	283	
Nevada	244	
Lassen	218	
Tuolumne	195	
Amador	183	
Mariposa	168	
Plumas	65	
Mono	38	
Sierra	28	
Alpine	6	
Tulare		940
Fresno		796
Tehama		670
Shasta		651
Placer		509
Kern		477
Madera		361
Butte		347
Yuba		257
Modoc		232
El Dorado		215
Inyo		51
<b>Total</b>	<b>1428</b>	<b>5506</b>

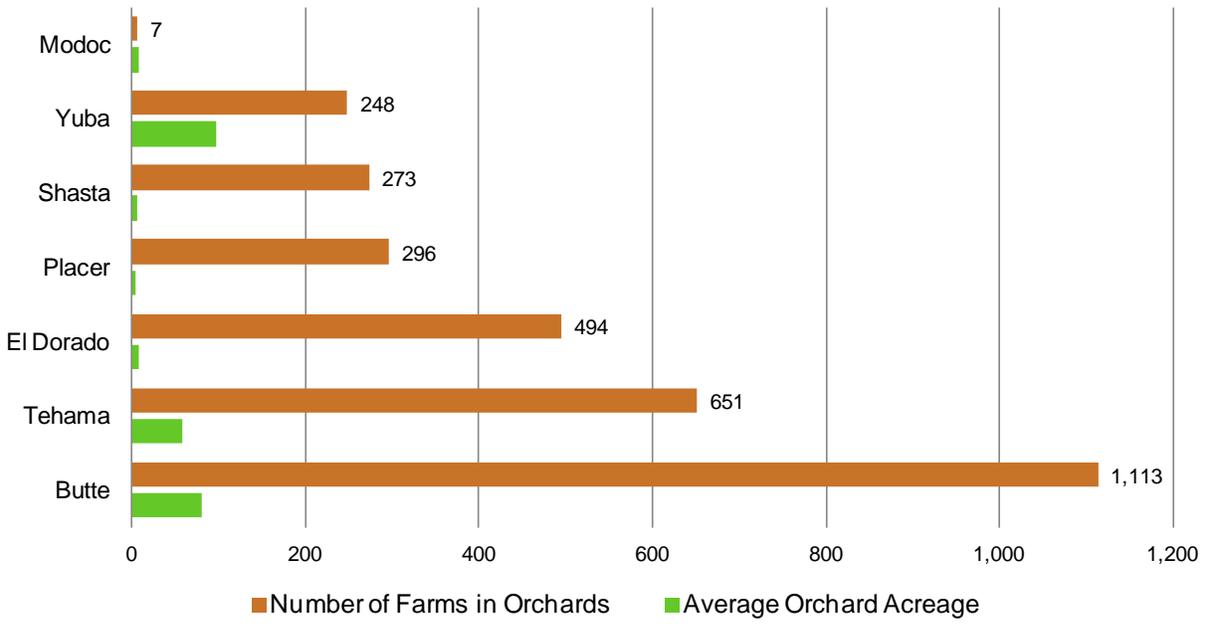
**Chart 4. Farms in Forage and Average Forage Acreage per Farm, Counties Fully within the SNC Region, 2007 Census of Agriculture**



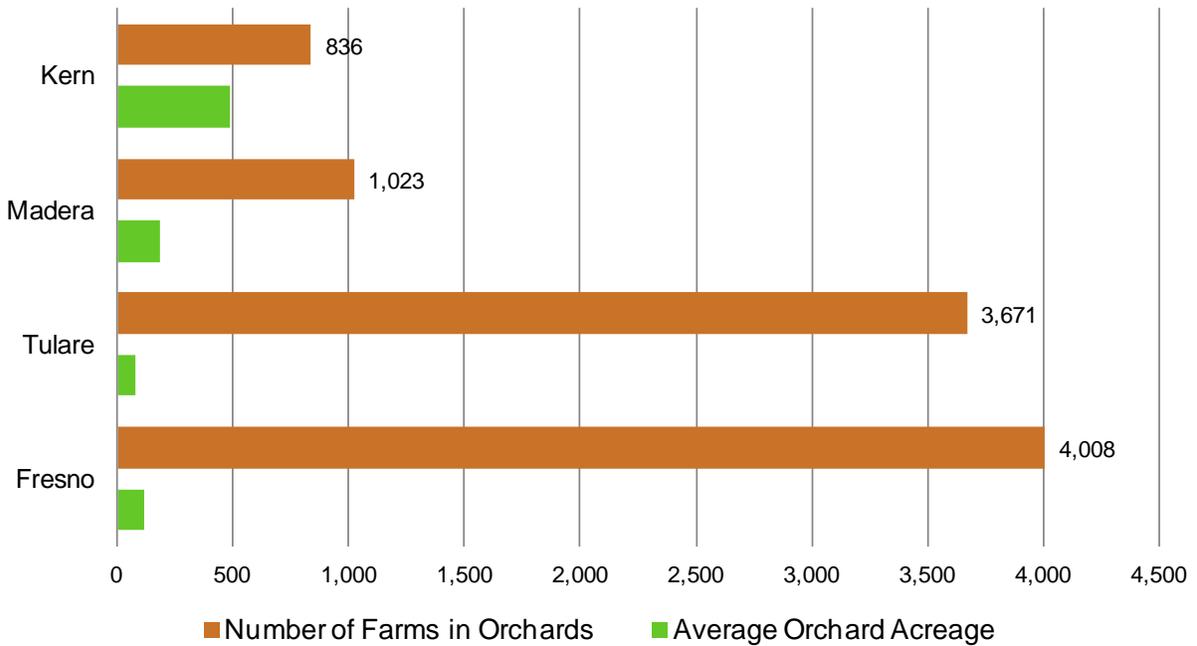
**Chart 5. Farms in Forage and Average Forage Acreage per Farm, Counties Partly within the SNC Region, 2007 Census of Agriculture**



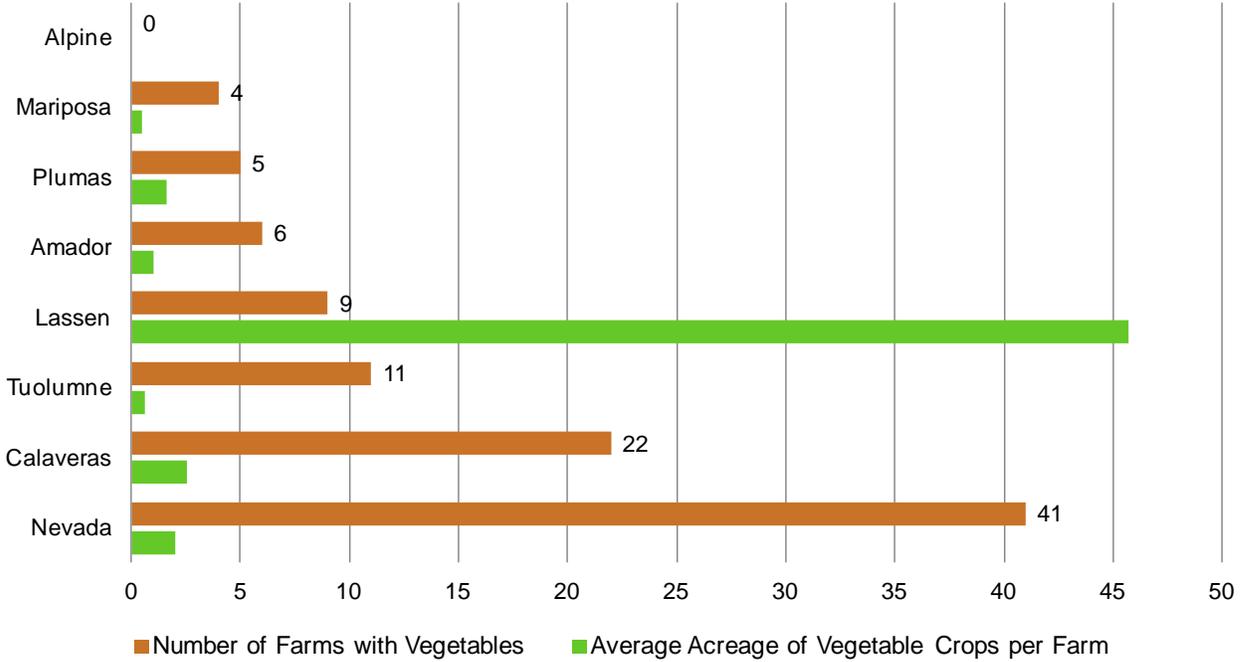
**Chart 6. Farms in Orchards and Average Orchard Acreage for Counties Fully within the SNC excluding the South Subregion, 2007 Census of Agriculture**



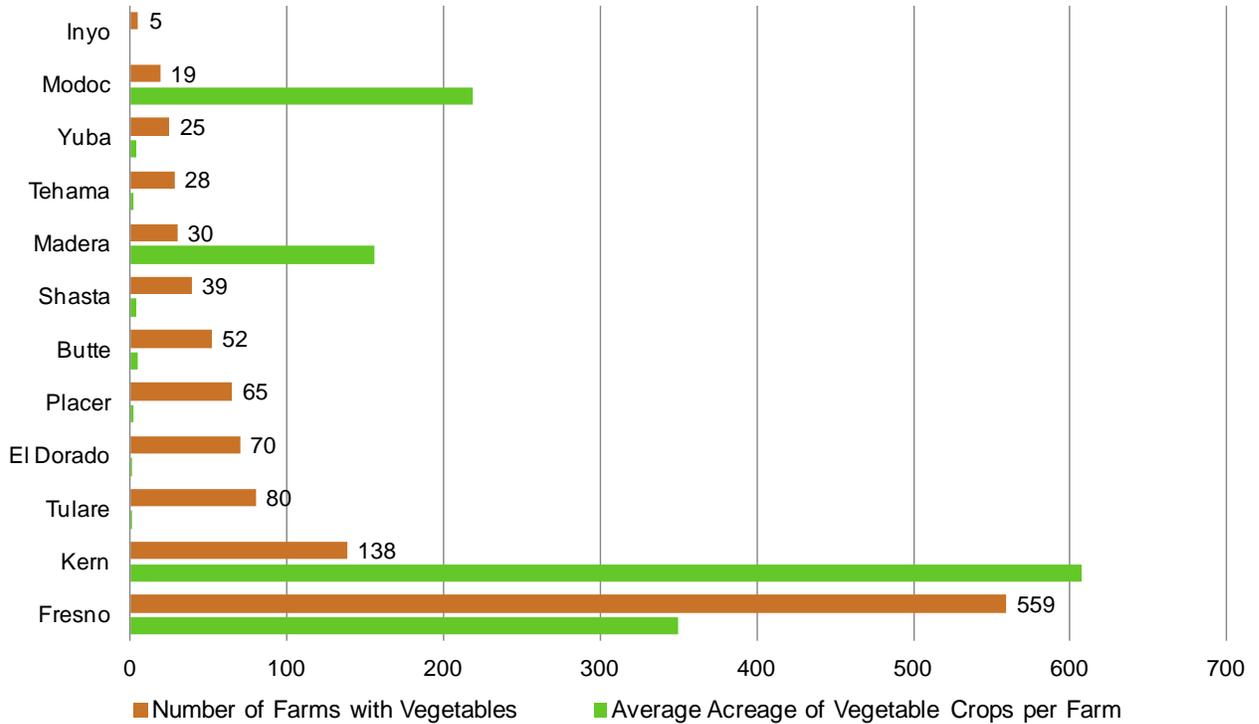
**Chart 7. Farms in Orchards and Average Orchard Acreage for the South Subregion, 2007 Census of Agriculture**



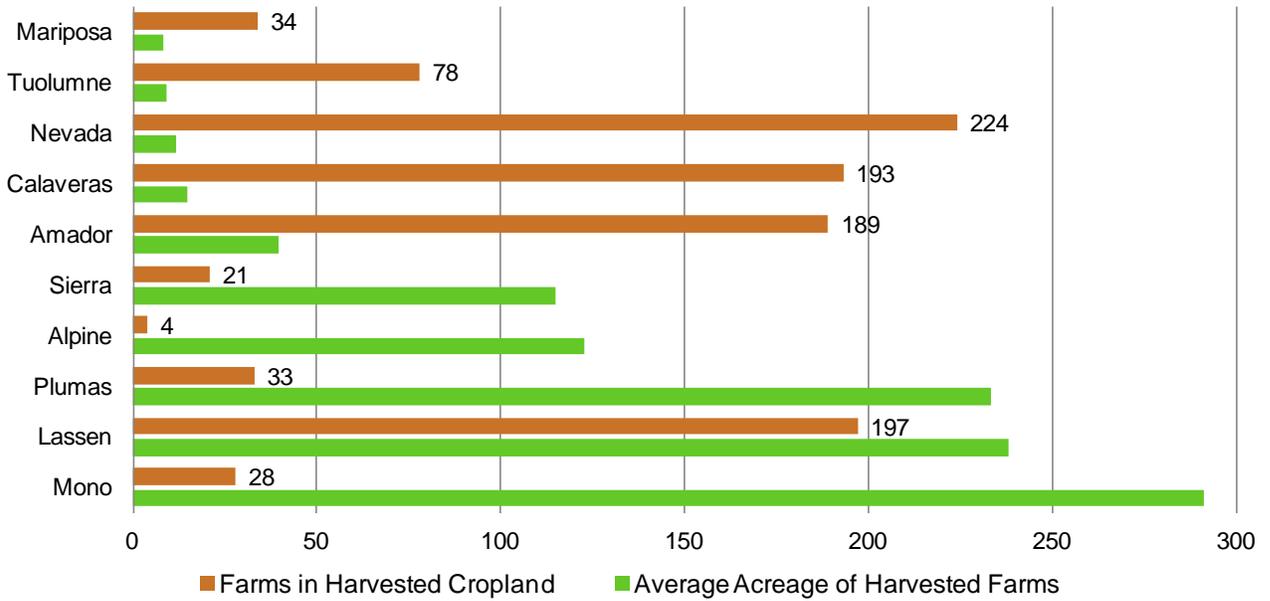
**Chart 8. Farms with Vegetables and Average Acreage of Vegetable Crops, Counties Fully within the SNC, 2007 Census of Agriculture**



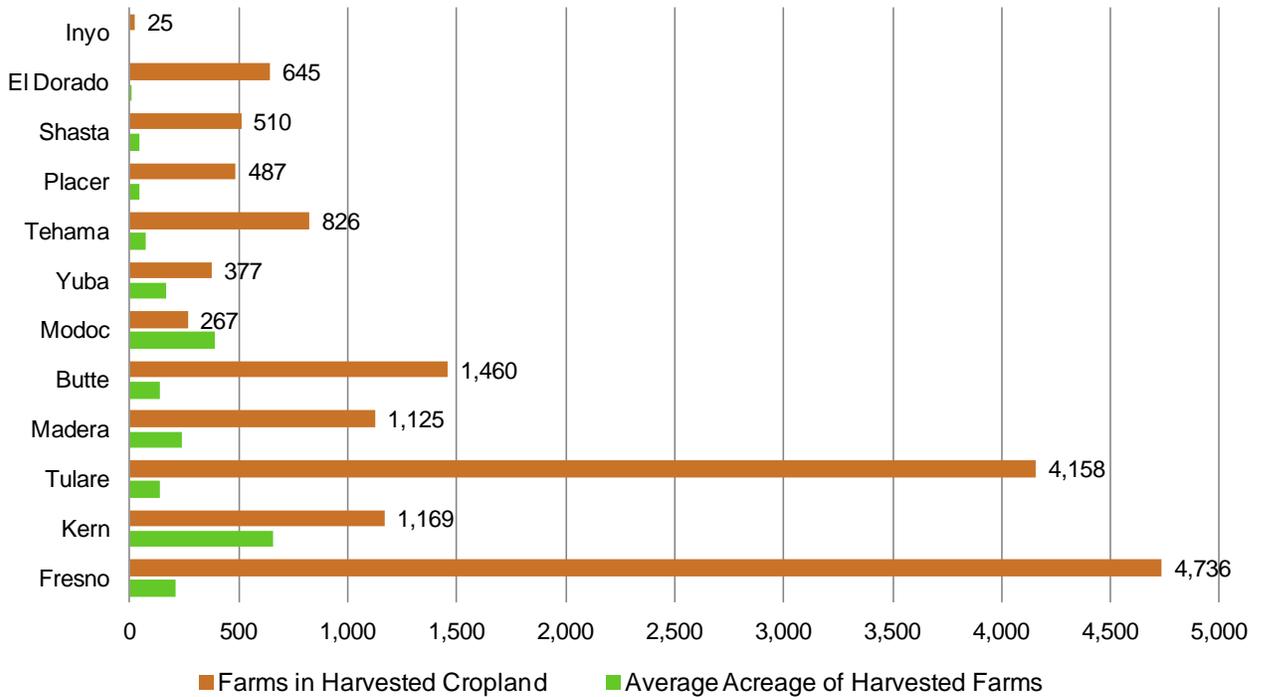
**Chart 9. Farms with Vegetables and Average Acreage of Vegetable Farms, Counties Partly within the SNC, 2007 Census of Agriculture**



**Chart 10. Farms in Harvested Cropland and Average Acreage of Harvested Cropland, Counties Fully within the SNC, 2007 Census of Agriculture**



**Chart 11. Farms in Harvested Cropland and Average Acreage of Harvested Cropland, Counties Partly within the SNC, 2007 Census of Agriculture**



**Appendix C - Leading Commodities by County and Statewide Rank and Operator Information**

**Table 9. Leading Commodities for Gross Value of Agricultural Production by SNC County, California Agricultural Statistics Review 2011, including Forest Products**

<p><b>Alpine, East Subregion, (Fully in Region)</b>            1. Cattle &amp; Calves, Unspecified-\$2,659,000            2. Pasture, Range-\$2,394,000            3. Pasture, Irrigated-\$188,000            4. Hay, Other, Unspecified-\$70,000</p>	<p><b>Amador, South Central Subregion, (Fully in Region)</b>            1. Grapes, Wine-\$11,676,000            2. Cattle, Calves Only-\$8,624,000            3. Pasture, Range-\$3,450,000            4. Vegetables, Unspecified-\$1,262,000            5. Hay, Grain-\$728,000            6. Livestock, Unspecified-\$587,000            7. Hay, Alfalfa-\$419,000            8. Field Crops, Unspecified-\$384,000            9. Goats &amp; Kids, Unspecified-\$381,000            10. Walnuts, English-\$234,000</p>
<p><b>Butte, North Central Subregion, (Partly in Region)</b>            1. Walnuts, English-\$218,680,000            2. Rice, Milling-\$141,515,000            3. Almonds, All-\$129,000,000            4. Plums, Dried-\$33,291,000            5. Nursery Products-\$21,728,000            6. Rice, Seed-\$15,340,000            7. Fruit &amp; Nuts, Unspecified-\$11,169,000            8. Cattle &amp; Calves, Unspecified-\$8,913,000            9. Peaches, Clingstone-\$7,975,000            10. Field Crops, Unspecified-\$7,076</p>	<p><b>Calaveras, South Central, (Fully in Region)</b>            1. Cattle &amp; Calves, Unspecified-\$7,600,000            2. Pasture, Range-\$3,021,000            3. Grapes, Wine-\$2,916,000            4. Poultry, Unspecified-\$2,894,000            5. Walnuts, English-\$1,360,000            6. Nursery Products, Misc-\$300,000            7. Pasture, Irrigated-\$260,000            8. Vegetables, Unspecified-\$225,000            9. Fruits &amp; Nuts-\$204,000            10. Sheep &amp; Lambs, Unspecified-\$155,000</p>
<p><b>El Dorado, Central Subregion, (Partly in Region)</b>            1. Apple, All-\$6,730,000            2. Grapes, Wine-\$5,137,000            3. Cattle &amp; Calves, Unspecified-\$5,019,000            4. Pasture, Range-\$4,194,000            5. Christmas Trees, Cut Greens-\$2,049,000            6. Nursery Products, Misc-\$1,818,000            7. Livestock, Unspecified-\$1,342,000            8. Pears, Bartlett-\$1,113,000            9. Pears, Asian-\$743,000            10. Apiary Prod, Pollination Fees-\$712,000</p>	<p><b>Fresno, South Subregion, (Partly in Region)</b>            1. Almonds, All-\$772,616,000            2. Milk, Market, Fluid-\$503,540,000            3. Livestock, Unspecified-\$498,041,000            4. Grapes, Raisin-\$467,280,000            5. Tomatoes, Processing-\$365,750,000            6. Grapes, Wine-\$303,628,000            7. Garlic All-\$285,297,000            8. Cotton Lint, Pima-\$277,865,000            9. Tomatoes, Fresh Market-\$266,570,000            10. Grapes, Table-\$190,869,000</p>
<p><b>Inyo, East Subregion, (Partly in Region)</b>            1. Hay, Alfalfa-\$4,797,000            2. Cattle, Steers-\$4,698,000            3. Cattle, Heifers-\$3,718,000</p>	<p><b>Kern, South Subregion (Partly in Region)</b>            1. Milk, Market, Fluid-\$739,298,000            2. Almonds, All-\$690,610,000            3. Grapes, Table-\$548,551,000</p>

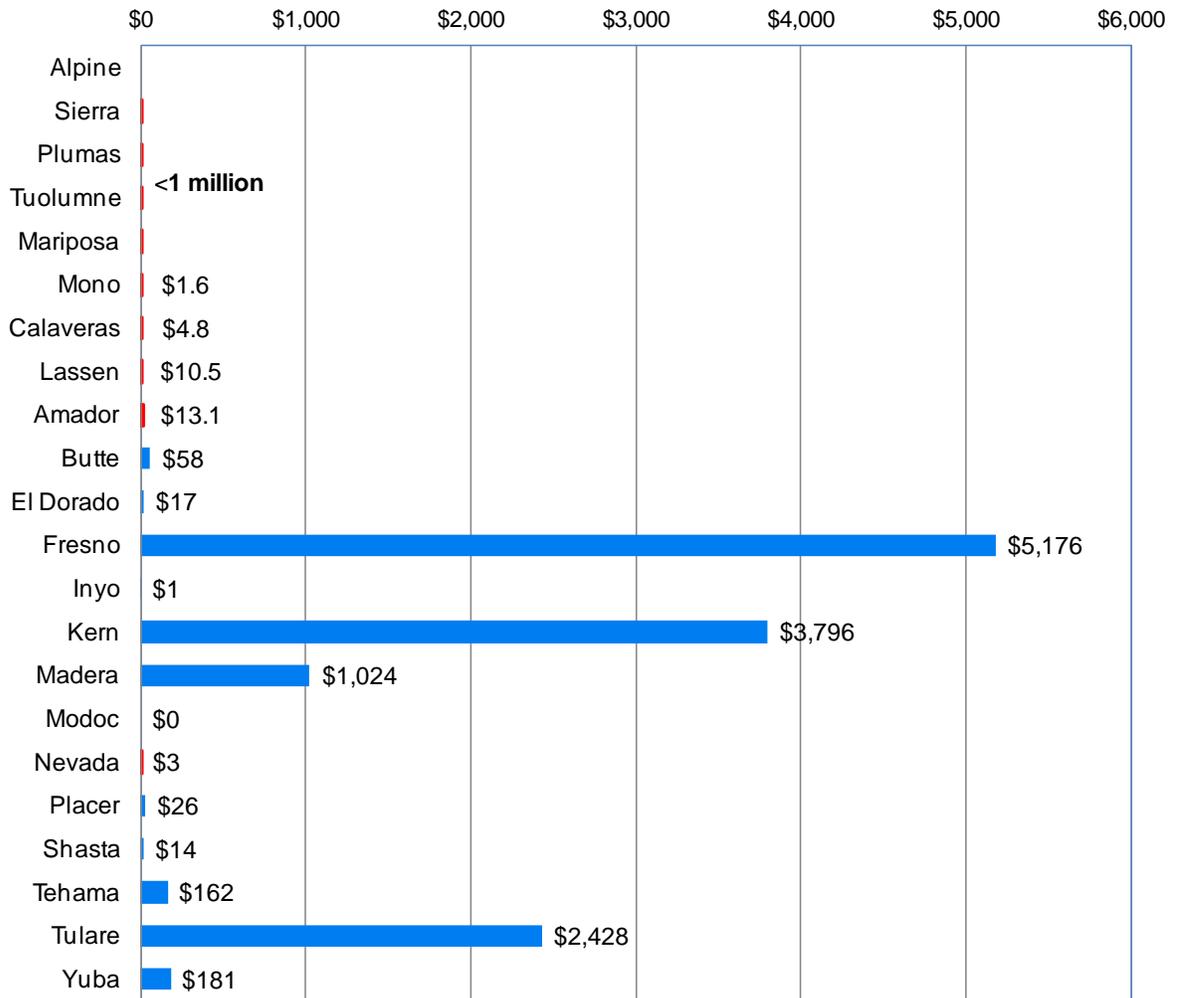
<ul style="list-style-type: none"> <li>4. Apiary Products, Honey-\$2,828,000</li> <li>5. Cattle, Stockers, Feeders-\$2,342,000</li> <li>6. Cattle, Cows-\$2,200,000</li> <li>7. Hay, Other, Unspecified-\$1,535,000</li> <li>8. Nursery, Turf-\$1,112,000</li> <li>9. Pasture, Range-\$1,092,000</li> <li>10. Sheep &amp; Lambs, Unspecified-\$950,000</li> </ul>	<ul style="list-style-type: none"> <li>4. Vegetables, Unspecified-\$459,219,000</li> <li>5. Pistachios-\$338,527,000</li> <li>6. Cattle &amp; Calves, Unspecified-\$338,540,000</li> <li>7. Hay, Alfalfa-\$226,601,000</li> <li>8. Oranges, Navel-\$241,979,000</li> <li>9. Cherries, Sweet-\$221,121,000</li> <li>10. Tangerines &amp; Mandarins-\$198,437,000</li> </ul>
<p><b>Lassen, North Subregion, (Fully in Region)</b></p> <ul style="list-style-type: none"> <li>1. Hay, Alfalfa-\$24,231,000</li> <li>2. Hay, Other Unspecified-\$21,225,000</li> <li>3. Vegetables, Unspecified-\$10,000,000</li> <li>4. Cattle, Steers-\$7,298,000</li> <li>5. Cattle, Milk Cows-\$5,272,000</li> <li>6. Cattle, Heifers-\$5,151,000</li> <li>7. Hay, Grain-\$3,335,000</li> <li>8. Pasture, Irrigated-\$3,036,000</li> <li>9. Cattle, Calves Only-\$2,900,000</li> <li>10. Pasture, Range-\$1,837,000</li> </ul>	<p><b>Madera, South Subregion, (Partly in Region)</b></p> <ul style="list-style-type: none"> <li>1. Almonds, All-\$382,817,000</li> <li>2. Milk, Market, Fluid-\$325,946,000</li> <li>3. Grapes, Wine-\$162,698,000</li> <li>4. Pistachios-\$113,098,000</li> <li>5. Grapes, Raisin-\$88,027,000</li> <li>6. Grapes, Table-\$49,956,000</li> <li>7. Cattle &amp; Calves, Unspecified-\$45,424,000</li> <li>8. Cattle, Dairy Heifers, RPLCMT-\$40,200,000</li> <li>9. Fruit &amp; Nuts, Unspecified-\$39,919,000</li> <li>10. Hay, Alfalfa-\$36,421,000</li> </ul>
<p><b>Mariposa, South Central Subregion, (Fully in Region)</b></p> <ul style="list-style-type: none"> <li>1. Cattle &amp; Calves, Unspecified-\$18,776,000</li> <li>2. Pasture, Range-\$5,800,000</li> <li>3. Livestock Products, Misc-\$2,696,000</li> <li>4. Poultry, Unspecified-\$1,729,000</li> <li>5. Livestock, Unspecified-\$759,000</li> <li>6. Fruit &amp; Nuts, Unspecified-\$457,000</li> <li>7. Sheep &amp; Lambs-\$239,000</li> <li>8. Field Crops, Unspecified-\$156,000</li> <li>9. Apiary Products, Honey-\$113,000</li> <li>10. Grapes, Wine-\$93,000</li> </ul>	<p><b>Modoc, North Subregion, (Partly in Region)</b></p> <ul style="list-style-type: none"> <li>1. Hay, Alfalfa-\$36,464,000</li> <li>2. Cattle &amp; Calves, Unspecified-\$18,894,000</li> <li>3. Potatoes, All-\$14,473,000</li> <li>4. Wheat, All-\$6,091,000</li> <li>5. Vegetables, Unspecified-\$5,836,000</li> <li>6. Pasture, Irrigated-\$5,500,000</li> <li>7. Hay, Grain-\$4,523,000</li> <li>8. Pasture, Range-\$4,032,000</li> <li>9. Hay, Wild-\$3,850,000</li> <li>10. Onions-\$3,077,000</li> </ul>
<p><b>Mono, East Subregion, (Fully in Region)</b></p> <ul style="list-style-type: none"> <li>1. Hay, Alfalfa-\$16,088,000</li> <li>2. Cattle, Stockers, Feeders-\$9,579,000</li> <li>3. Cattle, Steers-\$6,480,000</li> <li>4. Cattle, Heifers-\$4,899,000</li> <li>5. Hay, Other, Unspecified-\$4,500,000</li> <li>6. Sheep &amp; Lambs, Unspecified-\$3,990,000</li> <li>7. Cattle, Cows-\$3,036,000</li> <li>8. Pasture, Irrigated-\$1,925,000</li> <li>9. Potatoes, All-\$803,000</li> <li>10. Garlic, All-\$739,000</li> </ul>	<p><b>Nevada, Central Subregion (Fully in Region)</b></p> <ul style="list-style-type: none"> <li>1. Cattle, Heifers &amp; Steers, Fed-\$5,006,000</li> <li>2. Cattle, Milk Cows, Cull-\$3,927,000</li> <li>3. Grapes, Wine-\$1,960,000</li> <li>4. Pasture, Irrigated-\$1,500,000</li> <li>5. Pasture, Range-\$1,425,000</li> <li>6. Fruit &amp; Nuts, Unspecified-\$830,000</li> <li>7. Nursery Products, Misc.-\$392,000</li> <li>8. Sheep &amp; Lambs, Unspecified-\$306,000</li> <li>9. Livestock Products, Misc.-\$107,000</li> <li>10. Livestock, Unspecified-\$101,000</li> </ul>
<p><b>Placer, Central Subregion, (Partly in Region)</b></p> <ul style="list-style-type: none"> <li>1. Rice, Milling-\$17,909,000</li> <li>2. Cattle &amp; Calves, Unspecified-\$11,267,000</li> <li>3. Nursery Products-\$8,668,000</li> <li>4. Livestock, Unspecified-\$8,197,000</li> </ul>	<p><b>Plumas, North Central Subregion (Fully in Region)</b></p> <ul style="list-style-type: none"> <li>1. Cattle, Stock, Feeders-\$11,975,000</li> <li>2. Pasture, Irrigated-\$2,310,000</li> <li>3. Hay, Alfalfa-\$2,160,000</li> <li>4. Hay, Wild-\$1,170,000</li> </ul>

5. Pasture, Irrigated-\$2,520,000 6. Walnuts, English-\$2,476,000 7. Pasture, Range-\$2,340,000 8. Livestock Product, Misc.-\$1,600,000 9. Tangerines& Mandarins-\$1,316,000 10. Vegetables, Unspecified-\$1,000,000	5. Pasture, Forage, Misc.-\$1,040,000 6. Cattle, Beef Cows, Cull-\$542,000 7. Hay, Grain-\$252,000 8. Fruits & Nuts, Unspecified-\$250,000 9. Pasture, Range-\$195,000 10. Livestock, Unspecified-\$125,000
<b>Shasta, North Subregion, (Partly in Region)</b> 1. Hay, Other, Unspecified-\$18,101,000 2. Forest Products, Unspecified-\$12,732,000 3. Cattle, Stockers, Feeders-\$11,600,000 4. Nursery Products, Misc.-\$7,127,000 5. Rice, Wild-\$4,238,000 6. Pasture, Irrigated-\$4,125,000 7. Cattle, Beef Cow, Breeding-\$4,125,000 8. Cattle, Heifers & Steers, Fed-\$3,720,000 9. Pasture, Range-\$3,675,000 10. Walnuts, English-\$2,866,000	<b>Sierra, North Central Subregion, (Fully in Region)</b> 1. Cattle, Stockers, Feeders-\$3,590,000 2. Pasture, Irrigated-\$756,000 3. Hay, Alfalfa-\$548,000 4. Hay, Wild-\$454,000 5. Pasture, Forage, Misc.-\$400,000 6. Hay, Grain-\$161,000 7. Cattle, Beef Cows, Cull-\$149,000 8. Pasture, Range-\$72,000 9. Fruits & Nuts, Unspecified-\$35,000 10. Livestock, Unspecified-\$35,000
<b>Tehama, North Central Subregion, (Partly in Region)</b> 1. Walnuts, English-\$93,799,000 2. Plums, Dried-\$29,753,000 3. Almonds, All-\$23,100,000 4. Milk, Market, Fluid-\$14,423,000 5. Nursery Products, Misc.-\$11,103,000 6. Pasture, Range-\$11,088,000 7. Cattle, Stockers, Feeders-\$9,475,000 8. Fruits & Nuts, Unspecified-\$5,750,000 9. Cattle, Heifers & Steers, Fed-\$4,324,000 10. Cattle, Calves Only-\$4,053,000	<b>Tulare, South Subregion, (Partly in Region)</b> 1. Milk, Market, Fluid-\$2,047,865,000 2. Cattle & Calves, Unspecified-\$547,400,000 3. Oranges, Navel-\$484,916,000 4. Grapes, Table-\$439,228,000 5. Corn, Silage-\$206,700,000 6. Hay, Alfalfa-\$170,000,000 7. Pistachios-\$144,744,000 8. Walnuts, English-\$140,000,000 9. Tangerines & Mandarins-\$133,722,000 10. Almonds-\$123,390,000
<b>Tuolumne, South Central Subregion, (Fully in Region)</b> 1. Livestock, Unspecified-\$9,243,000 2. Cattle, Calves Only-\$6,710,000 3. Pasture, Range-\$3,930,000 4. Forest Products, Firewood-\$1,140,000 5. Cattle, Beef Cows, Cull-\$391,000 6. Fruits & Nuts, Unspecified-\$269,000 7. Nursery Products, Misc.-\$244,000 8. Sheep & Lambs, Unspecified-\$219,000 9. Pasture Irrigated-\$185,000 10. Vegetables, Unspecified-\$131,000	<b>Yuba, Central Subregion, (Partly in Region)</b> 1. Rice, Milling-\$61,925,000 2. Walnuts, English-\$55,938,000 3. Plums, Dried-\$28,548,000 4. Peaches, Clingstone-\$14,759,000 5. Milk, Market, Fluid-\$14,722,000 6. Cattle & Calves, Unspecified-\$6,757,000 7. Kiwifruit-\$3,056,000 8. Pasture, Range-\$2,835,000 9. Almonds, All-\$2,744,000 10. Persimmons-\$1,958,000

**Table 10. Cattle and Calves, and Hay and Pasture Crop Sales, California Agricultural Statistics Review, 2011**

<b>County</b>	<b>Cattle and Calves, 2011 Crop Report, Counties Fully in the Region</b>	<b>Cattle and Calves, 2011 Crop Report, Counties Partly in the Region</b>	<b>Hay and Pasture, 2011 Crop Reports, Counties Fully in the Region</b>	<b>Hay and Pasture, 2011 Crop Reports, Counties Partly in the Region</b>
<b>Mono</b>	\$24,400,425		\$23,072,500	
<b>Lassen</b>	\$22,392,421		\$54,362,926	
<b>Mariposa</b>	\$18,776,000		\$6,016,000	
<b>Plumas</b>	\$14,780,117		\$9,591,000	
<b>Amador</b>	\$8,624,000		\$5,323,544	
<b>Nevada</b>	\$8,302,800		\$2,925,000	
<b>Calaveras</b>	\$7,600,000		\$3,597,000	
<b>Tuolumne</b>	\$7,101,000		\$4,204,000	
<b>Sierra</b>	\$4,914,192		\$3,200,363	
<b>Alpine</b>	\$2,658,800		\$2,651,196	
<b>Tulare</b>		\$547,400,000		\$410,651,000
<b>Kern</b>		\$383,540,000		\$294,547,000
<b>Fresno</b>		\$351,782,000		\$126,740,000
<b>Madera</b>		\$85,624,000		\$44,917,000
<b>Tehama</b>		\$22,645,400		\$9,979,000
<b>Shasta</b>		\$21,252,000		\$23,267,000
<b>Modoc</b>		\$18,894,000		\$36,464,000
<b>Inyo</b>		\$13,256,655		\$7,916,500
<b>Placer</b>		\$11,266,500		\$5,778,531
<b>Butte</b>		\$10,366,000		\$6,585,000
<b>Yuba</b>		\$6,757,000		\$5,090,000
<b>El Dorado</b>		\$5,018,900		\$4,392,438
<b>Totals</b>	<b>\$119,549,755</b>	<b>\$1,477,802,455</b>	<b>\$114,943,529</b>	<b>\$976,327,469</b>

**Chart 12. Value of Crops, not including Hay and Pasture,  
Millions of Dollars, 2011 Crop Reports**



■ Crops not including hay and pasture, Counties Fully within the SNC Region  
■ Crops not including hay and pasture, Counties Partly within the SNC Region

**Table 11. Operators by Primary Occupation as Farming/Ranching or Other Occupation, 2007 Census of Agriculture**

<b>County</b>	<b>Total Operators</b>	<b>Percent Operators, Primary Occupation on Farming/Ranching</b>	<b>Operators, Primary Occupation on Farming/Ranching</b>	<b>Percent Operator With Primary Occupation Other than Farming/Ranching</b>	<b>Operator With Primary Occupation Other than Farming/Ranching</b>
<b>Alpine (Fully in Region)</b>	7	29%	2	71%	5
<b>Nevada (Fully in Region)</b>	690	43%	295	57%	395
<b>El Dorado (Partly in Region)</b>	1,268	43%	543	57%	725
<b>Mariposa (Fully in Region)</b>	302	45%	135	55%	167
<b>Placer (Partly in Region)</b>	1,488	45%	670	55%	818
<b>Mono (Fully in Region)</b>	84	45%	38	55%	46
<b>Calaveras (Fully in Region)</b>	631	46%	288	54%	343
<b>Shasta (Partly in Region)</b>	1,473	47%	689	53%	784
<b>Tuolumne (Fully in Region)</b>	366	47%	173	53%	193
<b>Amador (Fully in Region)</b>	479	49%	236	51%	243

<b>Plumas (Fully in Region)</b>	142	49%	70	51%	72
<b>Inyo (Partly in Region)</b>	94	50%	47	50%	47
<b>Tehama (Partly in Region)</b>	1,752	50%	877	50%	875
<b>Yuba (Partly in Region)</b>	828	50%	417	50%	411
<b>Butte (Partly in Region)</b>	2,048	52%	1,057	48%	991
<b>Lassen (Fully in Region)</b>	459	53%	242	47%	217
<b>Tulare (Partly in Region)</b>	5,240	53%	2,786	47%	2,454
<b>Madera (Partly in Region)</b>	1,708	54%	929	46%	779
<b>Fresno (Partly in Region)</b>	6,081	57%	3,471	43%	2,610
<b>Kern (Partly in Region)</b>	2,117	57%	1,215	43%	902
<b>Modoc (Partly in Region)</b>	448	60%	269	40%	179
<b>Sierra (Fully in Region)</b>	50	72%	36	28%	14

**Table 12. County Total Gross Agricultural Production Rank by County & Operators & Days Off Worked Operators, 2007 Census of Agriculture**

<b>County</b>	<b>Total Operators</b>	<b>Percent Operators, Days Worked Off Operation</b>	<b>Principal Operators, Days Worked Off Operation</b>	<b>Percent Operators, Days Worked Off Operation, 200 or More Days</b>	<b>Principal Operators, Days Worked Off Operation, 200 or More Days</b>
<b>Inyo (50)</b>	94	69%	65	45%	42
<b>Kern (3)</b>	2,117	66%	1,390	43%	903
<b>Plumas (52)</b>	142	61%	87	42%	59
<b>Yuba (30)</b>	828	65%	536	41%	343
<b>Lassen (39)</b>	459	68%	311	41%	187
<b>Tulare (2)</b>	5,240	69%	3,600	41%	2,132
<b>Tehama (29)</b>	1,708	68%	1,160	40%	690
<b>Nevada (54)</b>	690	72%	500	39%	269
<b>Mariposa (48)</b>	302	69%	208	38%	115
<b>Butte (17)</b>	2,048	67%	1,373	38%	779
<b>Calaveras (53)</b>	631	72%	456	38%	240
<b>Placer (43)</b>	1,488	67%	994	37%	557
<b>Shasta (40)</b>	1,473	68%	999	37%	550
<b>Tuolumne (51)</b>	366	77%	280	37%	135
<b>Amador (49)</b>	448	74%	330	37%	165
<b>Fresno (1)</b>	6,081	66%	3,998	37%	2,232
<b>Madera (12)</b>	1,752	63%	1,096	36%	639
<b>Sierra (56)</b>	50	60%	30	34%	17
<b>Modoc (37)</b>	479	59%	281	33%	160
<b>Alpine (57)</b>	7	57%	4	29%	2
<b>Mono (44)</b>	84	63%	53	26%	22
<b>El Dorado (47)</b>	1,268	43%	543	25%	313

**Table 13. Number of Female Operators and Percent Female Operators by County, 2007  
Census of Agriculture**

<b>County</b>	<b>Total Operators</b>	<b>Female Operators With One or More Operators</b>	<b>Percent Female Operators</b>
<b>Nevada</b>	690	571	83%
<b>Tuolumne</b>	366	287	78%
<b>Plumas</b>	142	92	65%
<b>El Dorado</b>	1,268	781	62%
<b>Amador</b>	448	255	57%
<b>Sierra</b>	50	27	54%
<b>Mariposa</b>	302	158	52%
<b>Calaveras</b>	631	319	51%
<b>Lassen</b>	459	199	43%
<b>Modoc</b>	479	185	39%
<b>Yuba</b>	828	303	37%
<b>Placer</b>	1,488	536	36%
<b>Shasta</b>	1,473	473	32%
<b>Mono</b>	84	23	27%
<b>Alpine</b>	7	1	14%
<b>Butte</b>	2,048	82	4%
<b>Fresno</b>	6,081	206	3%
<b>Madera</b>	1,752	55	3%
<b>Kern</b>	2,117	54	3%
<b>Tehama</b>	1,708	37	2%
<b>Tulare</b>	5,240	72	1%
<b>Inyo</b>	94	0	0%

## **Appendix D - Programs that aid in the Preservation of Working Landscapes & Conversion of Agriculture and Rangeland as reported by the Department of Conservation**

Agencies and organizations operate other voluntary programs focused on preservation and restoration of working landscapes through the use of conservation easements and restoration projects. The Natural Resources Conservation Service (NRCS) operates multiple improvement and easement program nationwide. These programs include the Environmental Quality Incentives Program (EQUIP); the Wildlife Habitat Incentives Program (WHIP); the Cooperative Conservation Partnership Initiative (CCPI); the Conservation Stewardship Program (CSP); the Wetland Reserve Program (WRP); the Farm & Ranch Protection Program (FRPP); and the Grazing Reserve Program (GRP). The EQUIP, WHIP, CCPI, and CSP programs are aimed at improving forage, water quality and wildlife habitat, which can include fencing, range plantings, invasive plant removal, or transition to organic grazing practices. The WRP, CCPI and GRP are easement programs to protect working landscapes from development and may include restoration to improve wetland, farming and grazing functions. Local Resource Conservation Districts may operate similar programs in concert with the NRCS.

The United States Fish and Wildlife Service (USFWS) operates the Partners for Fish and Wildlife Program. Under this voluntary program, the USFWS, landowners, and other potential partners coordinate to implement restoration projects using 50 percent cost share. Projects have been implemented in the Sierra including wetland and upland restoration efforts on ranches in Tehama and Calaveras Counties. The USFWS is currently reviewing comments and is preparing to draft the final proposal for the California Foothills Legacy Program, which is a voluntary conservation easement program aimed at allowing families to permanently continue ranching operations and protect important wildlife values in the foothills bordering the San Joaquin Valley.

The Wildlife Conservation Board (WCB) runs the Ecosystem Restoration on Agricultural Lands (ERAL) and the Riparian Programs that are primarily focused on the restoration of streams and other wetlands as well as native grasslands. These programs require a 25-year maintenance agreement, and the WCB generally provides up to 75% of the project cost.

Not-for-profit conservation organizations work alongside many of the agency programs just described to both restore and protect farms and rangelands as well as wildlife habitat through conservation easements. Conservation easements allow the farmer or rancher to take a tax deduction based on the assessed value of the land protected from specific types of development through the easement.

In addition to the voluntary restoration and preservation efforts that agencies and organizations undertake to protect working landscapes in the Sierra, mitigation is often required to offset the impacts of a new development to farm and rangelands and the resources they provide. The California Department of Fish and Wildlife, the USFWS, and the Army Corps of Engineers may use mitigation easements as part of required mitigation and preserve and restore working landscapes in the Sierra. The Central Valley Project Conservation Program (CVPCP), the Central Valley Project Improvement Act (CVPIA), and the Habitat Restoration Program (HRP) were implemented to restore habitat impacted by the Central Valley Project. The CVPCP and HRP are managed cooperatively by the U. S. Bureau of Reclamation and the USFWS, and the California Department of Fish and Wildlife provides management direction. The CVPCP and HRP funded several rangeland conservation easements in the foothills that border the Central Valley.

**Chart 13. Conversion of Agricultural & Rangeland Acres to Other Uses, FMMP 2002-2008**

