THE LAND BASE IS THE FOUNDATION OF THE REGION'S ECONOMY

Sequoia Riverland Trust
427 S. Garden
Visalia, CA 93277
(559) 738-0211

Sequoia Riverlands Trust
Conserving California's Heartland

Southern Sierra Partnership

By Adam Livingston

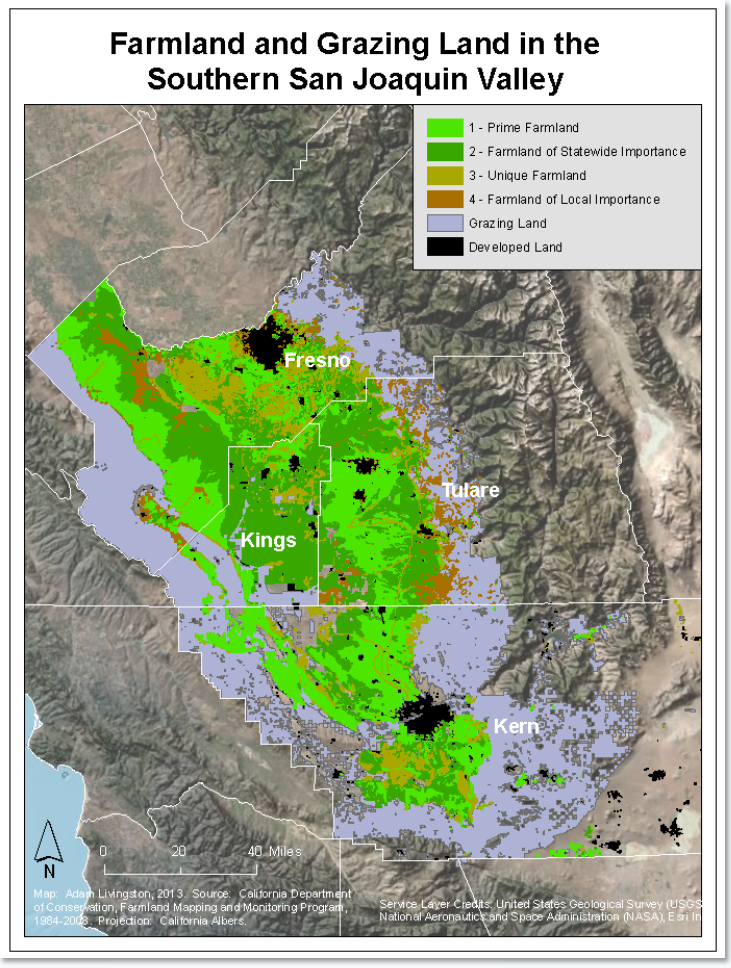
From farms on the Valley floor whose production has been valued at $20 billion a year to a National Park responsible for more than 1,700 local jobs and $100 million in annual visitor spending, the land base is the foundation of the region's economy.[1] The region's future depends on conserving this land base, and on creating dense, thriving city centers that can act as economic drivers in their own right.

A. JOBS AND REVENUE FROM AGRICULTURE

According to the U.S. Geological Survey, the Central Valley contains approximately 1% of the nation's farmland, but produces a quarter of its food supply.[2] The San Joaquin Valley, which encompasses the southern half of the Central Valley, has been described as "the single richest agricultural region in the world," and "the nation's salad bowl."[3] Its hundreds of commodities range from stonefruit, citrus and grapes, to vegetables, cotton and dairy products.[4] For many of these crops, the San Joaquin Valley is responsible for a significant percentage of U.S. or world production:

- Up to 73% of world almond production occurs in the San Joaquin Valley.[5]
- Approximately 45% of walnuts grown in the U.S. come from the San Joaquin Valley.[6]
- California produces more milk than any other state in the nation, and 86% of California milk production occurs in the San Joaquin Valley.[7]
- Nearly 100% of raisins produced in the U.S. are made from grapes grown within 60 miles of Fresno.[8]
- California leads the nation in carrot production, and California's carrot crop is dominated by Kern County.[9]

Much of this productivity is concentrated in the Valley's four southernmost counties. As the map illustrates, the majority of farmland in the Southern San Joaquin Valley has been designated as "prime," "of statewide importance" or "unique," and other areas have been identified as "farmland of local importance." Grazing land in the foothills adds to the region's productivity by supporting working ranches.



Farmland and grazing land in the Southern San Joaquin Valley (California Department of Conservation, 1984-2008).

1. Annual agricultural production and the total agricultural value chain

Fresno, Tulare and Kern are the top three farming counties in both California and the United States, together accounting for more than $17.8 billion in annual agricultural production.[10] Historically, these three counties have been responsible for nearly a third of the state's agricultural sales.[11] Kings County, which is smaller than Fresno, Tulare or Kern, but still ranks as the eighth most productive in the state, produces more than $2.2 billion.[12]

Photo: John Greening, 2010.

The economic benefits of agriculture, however, extend far beyond crop sales.[13] A 2011 study examining the agricultural value chain in California found that it supports nearly 2.5 million jobs at an average salary of $50,000, and contributes more than $300 billion to the state's economy.[14] These jobs include not only production and processing, but also packaging, support and distribution.[15] Far from being the concern only of farmers and ranchers, the region's agricultural land supports truckers, veterinarians, accountants and many others.[16] Indeed, a recent study found that every job in agricultural processing is associated with an additional 2.46 jobs in related fields.[17] In nearby San Joaquin County, this value chain supports 17% of total employment, and is responsible for an annual economic impact of more than $6.6 billion—approximately three times the value of the County's agricultural production alone.[18]

Photo: John Greening, 2009.

Taking the agricultural value chain into account, the University of California Agricultural Issues Center (AIC) found that every dollar of farm production in the San Joaquin Valley adds a total of $1.89 to the local economy.[19] This means that the true value of Fresno's annual agricultural production is not $6.9 billion, but more than $13.0 billion. Instead of amounting to $5.6 billion in Tulare and $5.4 billion in Kern, agricultural production in each of these counties puts more than $10 billion into the economy. The value added in Kings County is not $2.2 billion, but nearly $4.2 billion. And in the region as a whole, the value added by agricultural production is nearly $38 billion.

2. Farmland conservation as an economic imperative

A single acre of highly productive farmland can produce an annual crop worth thousands of dollars. In 2011, for example, the average acre of almonds in Fresno County produced a harvest worth approximately $5,151.[20] Multiplied by 1.89 to account for additional value added,[21] that acre put nearly $9,735 into the local economy.

The San Joaquin Valley's current development pattern is expected to consume more than 300,000 acres of highly productive farmland by 2050.[22] If these losses can be averted in the Southern San Joaquin Valley, and if an acre of almonds in Fresno is representative of the economic potential of highly productive farmland,[23] the region's economy stands to gain hundreds of millions of dollars.

- If 100,000 acres of highly productive farmland that would otherwise be developed can be conserved, and each acre makes an annual contribution of $9,735 to the local economy, the region will have saved a revenue stream worth nearly $1 billion a year.
- If 150,000 acres can be saved, and each contributes $9,735 a year, the region will keep a revenue stream worth nearly $1.5 billion a year.
- If 200,000 acres can be protected, and each contributes $9,735 a year, the region will keep a revenue stream worth more than $1.9 billion a year.

These figures understate the gains that can come from conservation, because they focus on highly productive farmland. According to the American Farmland Trust, the total amount of farmland lost to development in

Photo: Sequoia Riverlands Trust, 2009.

the San Joaquin Valley by 2050 may approach 500,000 acres.[24] If a significant portion of this land is in the Southern San Joaquin Valley, and if it can be conserved, the annual benefit to the region's economy is likely to be in the billions of dollars.

3. Economic benefits of rangeland

The Southern San Joaquin Valley's $20 billion in agricultural production includes over $4 billion in milk and dairy products,[25] and hundreds of millions attributed to the value of cattle themselves. A portion of this value comes from the Sierra foothills, where grassland provides forage for grazing.[26] Indeed, nearly 30% of the area devoted to agriculture in Fresno County is pasture and rangeland, as is nearly 40% in Tulare and over 50% in Kern.[27]

Rangeland also plays an essential role in securing the region's water supply. As melted snowpack and other runoff moves toward the Valley floor, rangeland in the foothills helps to channel it into waterways such as the Kings, Kaweah and Kern Rivers, and ultimately to the Valley floor.[28] Thus, by protecting rangeland, the region can maximize the amount of water available for agriculture and other economically productive uses.[29]

Photo: Sequoia Riverlands Trust, 2013.

But the contribution of rangelands to agriculture is not limited to dairy and cattle production, or even water supply. Intact habitat in the foothills supports crops on Valley floor by hosting wild bees, which provide pollination services worth hundreds of millions of dollars.[30] The statewide annual value of these services, which would have to be provided artificially if wild bee habitat disappeared, is estimated to be between $889 million and $2.2 billion.[31] Of this, Fresno County alone receives between $146 million and $313 million.[32] Kern ($61 million - $150 million), Tulare ($52 million - $125 million) and Kings ($17 million - $48 million) also benefit significantly.[33] Thus, through pollination by wild bees, habitat in and around the region's rangelands puts between $276 million and $636 million into the economy every year.[34]

B. JOBS AND REVENUE FROM NATIONAL PARKS AND OTHER PROTECTED LANDS

The economic benefits of land conservation are not limited to farms and ranches. With thousands of square miles of protected land, including a National Park, a National Monument, and portions of three National Forests, the region brings in millions of dollars from tourism and recreation. In 2010, for example, Sequoia and Kings Canyon National Park supported over 1,700 jobs and was responsible for more than $100 million in visitor spending.[35] Tourism and recreation also account for three fourths of the goods and services created by National Forests,[36] and policies favoring these uses may confer an additional benefit by reducing the costs associated with less productive uses.[37] Moreover, while most ecotourism revenue goes to communities in the Sierras, parks on the Valley floor, such as the nearby San Joaquin River Parkway, are also generating income through recreation.[38] And at least one study has found that additional revenue could be generated through wildlife-based recreation in wetlands.[39]

In addition to tourism and recreation, protected areas such as National Parks help to attract talented workers to the region—a significant advantage in a mobile, service-oriented economy.[40] Indeed, the presence of National Parks, National Forests and other federally-

protected land is correlated with population growth and economic growth in much of the Western U.S.[41] It has also been linked with higher per capita income in certain counties: non-metropolitan counties with more than 100,000 acres of protected public land have an average per capita income $4,360 higher than counties without protected lands.[42] This effect is not as easy to measure in metropolitan counties, such as those of the Southern San Joaquin Valley, but its existence elsewhere suggests that wilderness areas can be long-term assets to the region's economy.[43]

C. COMPACT CITY CENTERS AS DRIVERS OF ECONOMIC GROWTH

Unlike ranchettes and strip malls, the dense, thriving city centers created by compact growth can act as engines of economic growth. By bringing people and jobs together in large numbers, they allow for the creation of a complex and diversified economy.[44] Economic diversification, in turn, contributes to employment growth, and makes the region more resilient to increases in unemployment.[45] City centers also provide local markets for agricultural goods, allowing for direct economic links between city and countryside.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Moreover, density decreases the cost—in both money and time—of transportation, thereby removing another obstacle to economic growth.[46] Possibly for this reason, there is a positive correlation between annual per capita GDP and reductions in vehicle miles traveled in U.S. states.[47] There is also a positive correlation between annual per capita GDP and urban density in U.S. suburban regions.[48] As these results suggest, the region's economy could benefit significantly from policies designed to direct new development into existing city centers.

[1]National Agricultural Statistics Service, 2012; Headwaters Economics, 2012b.
[2] USGS, 2006.
[3]U.S. E.P.A., 2011; CERES, 2011.
[4]U.C. Davis Vegetable Research and Information Center, 2011; Umbach, 1997.
[5]San Joaquin Valley Regional Planning Agencies, 2012a.
[6]San Joaquin Valley Regional Planning Agencies, 2012a.
[7]San Joaquin Valley Regional Planning Agencies, 2012b.
[8]California Raisin Marketing Board, 2013.
[9]U.C. Davis Vegetable Research and Information Center, 2011; Umbach, 1997.
[10]National Agricultural Statistics Service, 2012; Economic Research Service, 2012. These figures include products of both farmland and rangeland. They do not include timber value, which amounted to $1.4 million in Fresno, $132,000 in Tulare, $176,000 in Kern, and nothing in Kings. National Agricultural Statistics Service, 2012.
[11]Centers of Excellence, 2011.
[12]National Agricultural Statistics Service, 2012.
[13]Centers of Excellence, 2011; University of California Agricultural Issues Center, 2009; Business Forecasting Center, 2008; Growth Alternatives Alliance 1998.
[14]Centers of Excellence, 2011.
[15]Centers of Excellence, 2011.
[16]Business Forecasting Center, 2008.
[17]University of California Agricultural Issues Center, 2009.
[18]Business Forecasting Center, 2008; National Agricultural Statistics Service, 2012.
[19]University of California Agricultural Issues Center, 2009.
[20]National Agricultural Statistics Service, 2012.
[21]University of California Agricultural Issues Center, 2009.
[22]American Farmland Trust, 2013.
[23]In 1998, the annual economic contribution of each acre of irrigated farmland in Fresno County was estimated to be between $6,000 and $15,000. Growth Alternatives Alliance, 1998.
[24]American Farmland Trust, 2013.
[25]National Agricultural Statistics Service, 2012. In 2011, the value of fluid milk produced by Tulare County alone was more than $2 billion. National Agricultural Statistics Service, 2012.
[26]SSP, 2010.
[27]Headwaters Economics, 2012a.
[28]DWR, 2009.
[29]SSP, 2010.
[30]Chaplin-Kramer et al., 2011a.
[31]Chaplin-Kramer et al., 2011a.
[32]Chaplin-Kramer et al., 2011b.
[33]Chaplin-Kramer et al., 2011b.
[34]Chaplin-Kramer et al., 2011b; R. Chaplin-Kramer, personal communication, October 29, 2012.
[35]Headwaters Economics, 2012b.
[36]The Southern Sierra contains portions of three National Forests—Sierra, Sequoia and Inyo—as well as the U.S. Forest Service-managed Sequoia National Monument.
[37]Pacific Rivers Council and ECONorthwest, 2002. Shifting to tourism and recreation (as opposed to extractive uses, which support relatively few jobs) could reduce costs by forestalling money-losing timber sales, lowering water treatment costs for downstream municipalities, and attracting new residents interested in natural amenities. Pacific Rivers Council and ECONorthwest, 2002.
[38]Houser and North, 1999.
[39]Creel and Loomis (1992) modeled the economic value of allocating water to 14 protected wetlands in the San Joaquin Valley, assuming that the wetlands would be used for bird watching, fishing and other wildlife-based recreation. They found that the value per acre-foot of water allocated to these wetlands was approximately $303 ($497 in 2013 dollars)—more than twice 1991 estimates of the value per acre-foot of water devoted to agricultural uses. Creel and Loomis, 1992; U.S. Bureau of Labor Statistics, 2013. For Kern and Pixley, two reserves that had unreliable water supplies at the time, increasing the water supply to optimum levels for outdoor recreation would yield a benefit of $348 ($571 in 2013 dollars) per acre-foot. Creel and Loomis, 1992. While this is an older study, it suggests that the potential for tourism and recreation revenue is not limited to the mountains.
[40]Headwaters Economics, 2012c.
[41]Headwaters Economics, 2011.
[42]Headwaters Economics, 2012c; Rasker, 2006.
[43]Headwaters Economics, 2012c; Rasker, 2006.
[44]Frenken et al., 2007; Izraeli and Murphy, 2003.
[45]Frenken et al., 2007. Specifically, diversification within the same economic sector has been found to contribute to employment growth, while diversification between sectors has been shown to slow the growth of unemployment. Frenken et al., 2007.
[46]Center for Neighborhood Technology, 2010; Cortright, 2010.
[47]Litman, 2012.
[48]Litman, 2012.