



# California Farmland Conversion Report 1998 - 2000



**State of California**

Gray Davis  
Governor

**Resources Agency**

Mary D. Nichols  
Secretary for Resources

**Department of Conservation**

Darryl Young  
Director



# The Farmland Mapping and Monitoring Program

*Documenting changes in agricultural land use since 1984.*

**T**he goal of the Farmland Mapping and Monitoring Program (FMMP) is to provide consistent, timely and accurate data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources.

Approximately 90% of the privately owned land in the state (44.5 million acres) is mapped by FMMP as of 2000. The survey area is shown on the following page (Figure 1). Each map is updated every two years, providing an archive for tracking land use change over time.

Using a geographic information system (GIS), air photos, local input, and other information, FMMP combines soil quality data and current land use information to produce Important Farmland Maps. The program is funded through the state's Soil Conservation Fund. This fund receives revenues from Williamson Act contract cancellation fees.

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## RESOURCES

 FMMP is authorized under Government Code §65570.

 The Williamson Act & FSZ Programs are part of the Division of Land Resource Protection, along with FMMP:  
[www.conservation.ca.gov](http://www.conservation.ca.gov)

The number of products available has grown with the requirements of users--including printed maps, statistics, field reports, and GIS data. The maps and data are used in environmental studies to assess the impacts of proposed development on agricultural and open space land. In recent years, FMMP data has become widely used in urbanization and environmental modeling, and comparative land cover studies.

In addition, only land that is classified in one of the four main agricultural categories on FMMP maps is eligible for enrollment in Farmland Security Zone (FSZ) contracts. Under FSZ contracts, landowners receive substantial property tax benefits for committing to keep their land in agricultural use for 20-year periods.

**This is the eighth Farmland Conversion Report** produced by the FMMP, the current report covering the 1998 to 2000 period.

## Farmland Mapping and Monitoring Program Survey Area 2000

Locations shown as 'Out of Survey Area' may be added in the future, while those indicated as 'Local, State, and Federal Owned Land' are not planned for incorporation. Examples of government owned land include National Parks, Forests, and Bureau of Land Management lands. Please note that small areas of public land are included in the FMMP survey area—generally appearing as 'Other Land' on the map below.

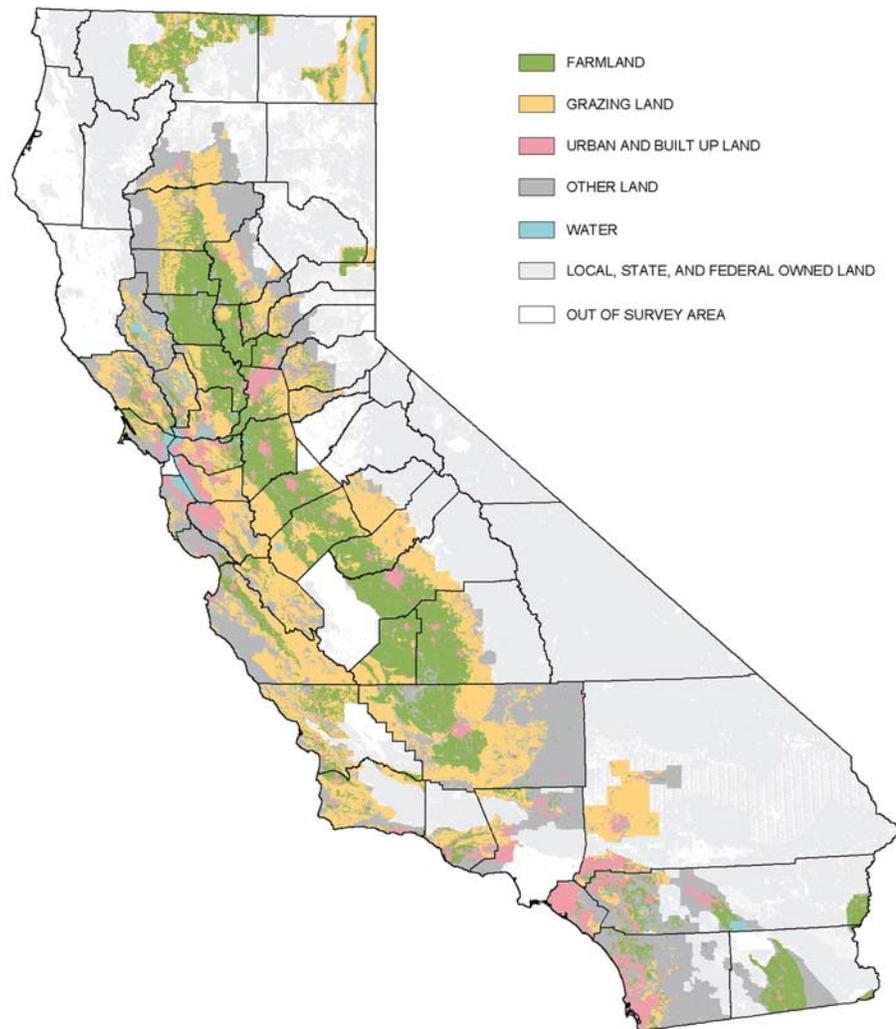


FIGURE 1  
FMMP  
SURVEY AREA

## Important Farmland Map Categories

About 90% of FMMP's study area is covered by U.S. Department of Agriculture (USDA) modern soil surveys. Technical ratings of the soils and current land use information are combined to determine the appropriate map category.

The minimum mapping unit for all categories is 10 acres unless otherwise noted.

**Prime Farmland** has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

**Farmland of Statewide Importance** is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

**Unique Farmland** consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

**Farmland of Local Importance** is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. The definitions for this category are detailed in Appendix D of this report.

**Grazing Land** is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit is 40 acres.

**Urban and Built-up Land** is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

**Other Land** is land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

**Water** - perennial water bodies with an extent of at least 40 acres.

## INTERIM MAPPING

In areas where no USDA soil survey is available, Interim Farmland categories allow FMMP to monitor land use until soils data becomes available. These categories substitute for the categories of Prime, Statewide, Unique, and Local. All other map categories are as described above.

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### ENHANCEMENTS

Colusa County & Western  
Tulare County were upgraded  
from Interim to Important  
Farmland status this update.

Areas remaining in Interim  
status are Butte County &  
portions of Kern County.

**Irrigated Farmland** is land with a developed irrigation water supply that is dependable and of adequate quality. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

**Nonirrigated Farmland** is land on which agricultural commodities are produced on a continuing or cyclic basis utilizing stored soil moisture. Wheat and other grains are the most common nonirrigated crops.

## OPTIONAL DESIGNATION

**Land Committed to Nonagricultural Use** is defined as existing farmland, grazing land, and vacant areas that have a permanent commitment for development. This optional designation allows local governments to provide detail on the nature of changes expected to occur in the future. It is available both statistically and as an overlay to the Important Farmland Map.

## STATISTICAL NOTES

**Residual Polygons**, those less than the 10- or 40-acre minimum mapping unit, are a natural result of the mapping process as changes are made to adjacent areas. In order to maintain map unit consistency, these small units are absorbed into the most appropriate adjacent land use type. This process results in shifts among categories that may appear anomalous in the conversion statistics--such as urban to agriculture or Prime Farmland to Farmland of Statewide Importance.

In some counties, major revisions to the maps are being made to accommodate new mapping technology. This process, and its effect on the data, is discussed in the following section of the report.

**Minimum units of analysis within the GIS database** are 0.3 acres for land use changes. When digital soil information is incorporated from USDA, soil units of less than 1.0 acre have been merged with the next most appropriate category.

# 2

## 1998-2000 Improvements

*An expanded study area and upgrades in the mapping process.*

Each year brings changes in technology and data availability, which FMMP attempts to incorporate in pragmatic fashion. Some upgrades can be made in a single two-year cycle, while others necessitate a phased-in approach.

Between 1998 and 2000, numerous changes were made to FMMP's mapping process. Many of these improvements were funded with a temporary augmentation FMMP received from the 2000 Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act (Proposition 13).



FIGURE 2  
ADDITIONS &  
UPGRADES

### **Survey area addition - Western Stanislaus County.**

The completion of a soil survey for this area allowed FMMP to add 391,096 acres of some of the most productive agricultural land in the San Joaquin Valley to the survey area. 100,976 acres of this land is Prime Farmland. Patterson and Newman are the largest communities within the addition.

### **Upgrades - Colusa County and Western Tulare County.**

About 1.5 million acres were upgraded from Interim to Important Farmland status this update due to the availability of new soil survey information. Soil data was added to

the 1998 versions of the maps, so that 1998-2000 conversion figures for the two locations are available in this report.

As part of this process, the Colusa County Board of Supervisors adopted a Farmland of Local Importance definition (see Appendix D). Tulare County's definition remains unchanged.

### **All digital map updating workflow - phase II.**

Starting in 1998, FMMP began incorporating digital air photos and satellite data into the update process—bringing major quality improvements to the maps. Table 1 lists which counties were migrated to this system during the 1998 and 2000 updates. All remaining counties are scheduled to complete this conversion during the 2002 map update.

TABLE 1  
DIGITAL MAP  
UPDATING

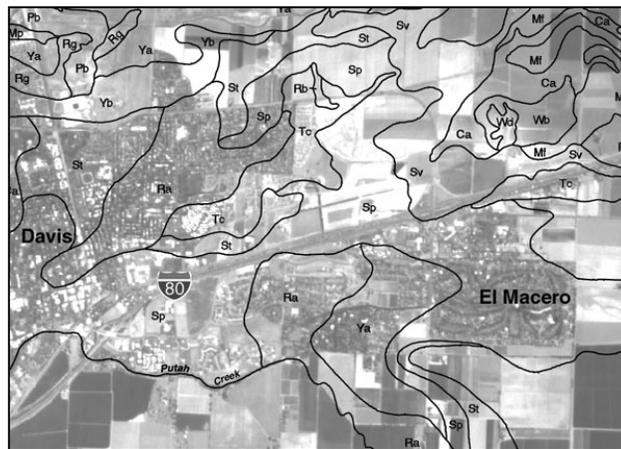
Farmland Mapping and Monitoring Program Digital Map Update Conversion Progress		
1998	2000	2002 (planned)
Fresno	Butte	Alameda
Kings	Colusa	Amador
Lake	Glenn	Contra Costa
Madera	Kern	El Dorado
Mariposa	Modoc	Imperial
Merced	Monterey	Los Angeles
Monterey (part)	Placer	Marin
Sacramento	San Diego	Napa
San Joaquin	San Luis Obispo	Nevada
Santa Barbara (part)	Santa Barbara	Orange
Stanislaus	Shasta	Riverside
Tulare	Sierra Valley	San Benito
	Siskiyou	San Bernardino
	Sonoma	San Mateo
	Sutter	Santa Clara
	Tehama	Santa Cruz
	Yolo	Solano
	Yuba	Ventura

Due to the boundary corrections that are inevitable with this improvement, anomalous land use conversions—from urban to agriculture, for example—are evident in the statistics for the year digital conversion takes place. In large counties such as Monterey and San Diego, these anomalies may total in the

thousands of acres. Footnotes have been added to the county conversion tables as appropriate.

As a result of this process, spatial accuracy of the Important Farmland data is expected to exceed the original compilation scale of 1:100,000.

FIGURE 3  
SOIL SURVEY  
EXAMPLE



**New Resources – Digital Soil Surveys.**

The Natural Resources Conservation Service (NRCS) has begun releasing its soil survey data in GIS format. This information offers much greater accuracy and ease of analysis compared with prior hand-transfer methods. FMMP is beginning to incorporate this data, first with new mapping areas (Western Stanislaus) and

upgrades (Colusa, Tulare Counties). This methodology is bringing about changes to FMMP field mapping and GIS analytic techniques—but aside from increased quality, the change will not affect the value-added Important Farmland data products that users have come to rely on.

# 3

## Understanding the Data

*Locating and interpreting the California Farmland Conversion Report's tabular data and graphics.*

Important Farmland information is developed on an individual county basis, taking two years to map the 44.5 million acre survey area. This report begins with each county's information, compiling it in various ways to produce the assessment in Chapter 4.

**Detailed county tables - Appendix A.** Includes acreage tallies and conversion data for individual counties. The figure below describes how conversion tables are constructed.

**1998 and 2000 county acreage tallies – Appendix B.** Values for the individual years (Tables B-1 and B-2) are extracted from Part I of the tables in Appendix A. These tables also indicate the proportion of each county within the FMMP survey area—approximately half of the counties are not completely mapped due to lack of a soil survey. Table B-3 shows this same information for 2000, grouped by region.

**Statewide conversion summary – Chapter 4, Table 3.** This table summarizes material from all three sections of the Appendix A information, with the exception of the Interim mapped areas in Butte County and portions of Kern County.

FIGURE 4  
CONVERSION  
TABLE  
STRUCTURE

TABLE 4  
LAND USE CONVERSION SUMMARY (1)  
1998-2000 Land Use Conversion

DEPARTMENT OF CONSERVATION  
Division of Land Resource Protection  
PART I  
Land Use Totals and Net Changes

Farmland Mapping and Monitoring Program  
PART II  
Land Committed to Nonagricultural Use

LAND USE CATEGORY	TOTAL ACREAGE INVENTORIED		1998-00 ACREAGE CHANGES			
	1998	2000	ACRES LOST (-)	ACRES GAINED (+)	TOTAL ACREAGE CHANGED	NET ACREAGE CHANGED
	Prime Farmland (2)					
Farmland of Statewide Importance						-12,213
Unique Farmland (2)						24,676
Farmland of Local Importance						-6,030
IMPORTANT FARMLAND						-33,155
Grazing Land						-52,193
AGRICULTURAL LAND						-85,348
Urban and Built-Up Land	2,535,516	2,608,038	13,755	86,277	100,032	72,522
Other Land	9,011,609	9,018,671	54,898	61,960	116,858	7,062
Water Area	637,377	643,141	491	6,255	6,746	5,764
<b>TOTAL AREA INVENTORIED</b>	<b>33,340,497</b>	<b>33,340,497</b>	<b>402,472</b>	<b>402,472</b>	<b>804,944</b>	<b>0</b>

**PART I:**  
Indicates county area mapped & overall change in each category.

PART II:		
<b>Land expected to be developed (voluntary submission by local governments).</b>		
Grazing Land		63,496
AGRICULTURAL LAND SUBT		124,134
Urban and Built-Up Land		18
Other Land		42,968
Water Area		22
<b>TOTAL ACREAGE REPORTED</b>		<b>167,142</b>

PART III Land Use Conversion from 1998 to 2000

LAND USE CATEGORY	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	Subtotal Important Farmland	Grazing Land	Total Agricultural Land	Urban and Built-Up Land	Other Land	Water Area	Total Converted To Another Use	
Prime Farmland (2)											84,183	
Farmland of Statewide Importance											45,548	
Unique Farmland (2)											29,644	
Farmland of Local Importance											80,914	
IMPORTANT FARMLAND											40,289	
Grazing Land											93,039	
AGRICULTURAL LAND SUBT											33,328	
Urban and Built-Up Land											13,755	
Other Land											54,898	
Water Area											491	
<b>TOTAL ACREAGE CONVERTED</b>	<b>to:</b>	<b>44,595</b>	<b>33,335</b>	<b>54,320</b>	<b>74,884</b>	<b>207,134</b>	<b>40,846</b>	<b>247,980</b>	<b>86,277</b>	<b>61,960</b>	<b>6,255</b>	<b>402,472</b>

**PART III:**  
Raw data from GIS provides detail on every acre of change that occurred. All changes result from revising the two-year-old linework based on new air photos.

**FOOTNOTES:**  
Information on large or unusual conversions and other descriptive material.

**County and regional conversion summaries – Appendix C.** The counties are grouped into geographic regions as seen in Figure 5. Table C-1 classifies the sources of new urban land for the period, by county and region. Table C-2 identifies other land use changes affecting agriculture, capturing the ebb and flow of agricultural land use change over time. Table C-3 documents net agricultural change from all factors, grouped by region and ranked by acreage. Appendix C information includes the Interim farmland portions of Butte and Kern counties. Much of the analysis in Chapter 4 is based on the data in Appendix C.

**Simplifying assumptions for analyses** – In order to conduct comparative analysis, certain simplifying assumptions have been made. For example, Unique Farmland is considered to be an irrigated farmland category, even though a small percentage of land within the Unique Farmland category supports high value nonirrigated crops, such as some coastal vineyards. Conversely, Farmland of Local Importance is considered to be a nonirrigated category although it also supports some irrigated pasture on lower-quality soils.

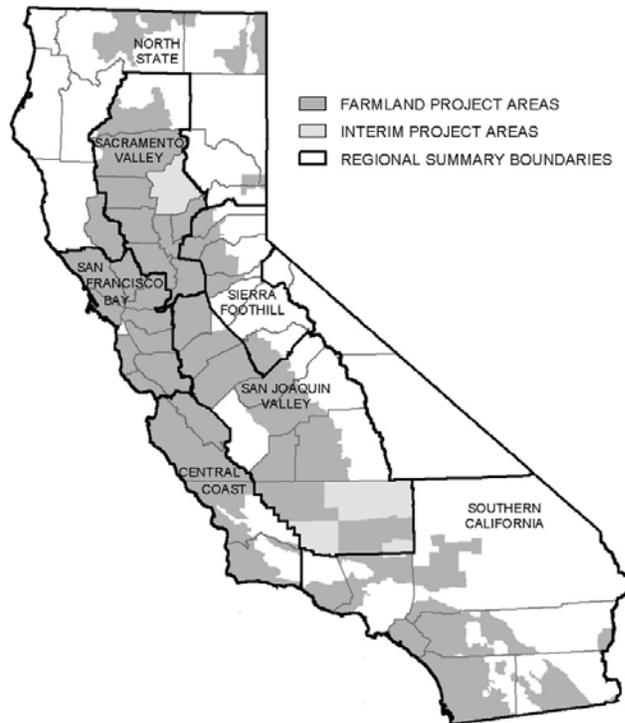


FIGURE 5  
FMMP REGIONS