

**CALIFORNIA  
FARMLAND CONVERSION  
REPORT  
1996 - 98**

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Prepared by the Staff of the  
**FARMLAND MAPPING AND MONITORING PROGRAM**  
California Department of Conservation

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## **CHAPTER ONE INTRODUCTION**

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### **THE FARMLAND MAPPING AND MONITORING PROGRAM**

The goal of the Department of Conservation's Farmland Mapping and Monitoring Program is to provide land use conversion information for decision makers to use in their planning for the present and future use of California's agricultural land resources. To meet this goal, FMMP provides maps and statistical data to the public, and local, state, and federal governments on a biennial basis.

The FMMP was established in 1982 to continue the Important Farmland mapping efforts started in 1975 by the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). The intent of the USDA-NRCS was to produce nationwide agricultural resource maps based on soil quality and land use. As part of this mapping effort, a series of definitions known as the Land Inventory and Monitoring (LIM) criteria were developed. The LIM criteria classified the land's suitability for agricultural production based on physical and chemical characteristics of soils and actual land use. Important Farmland maps are derived from USDA-NRCS soil survey maps using LIM criteria and the biennial monitoring conducted by

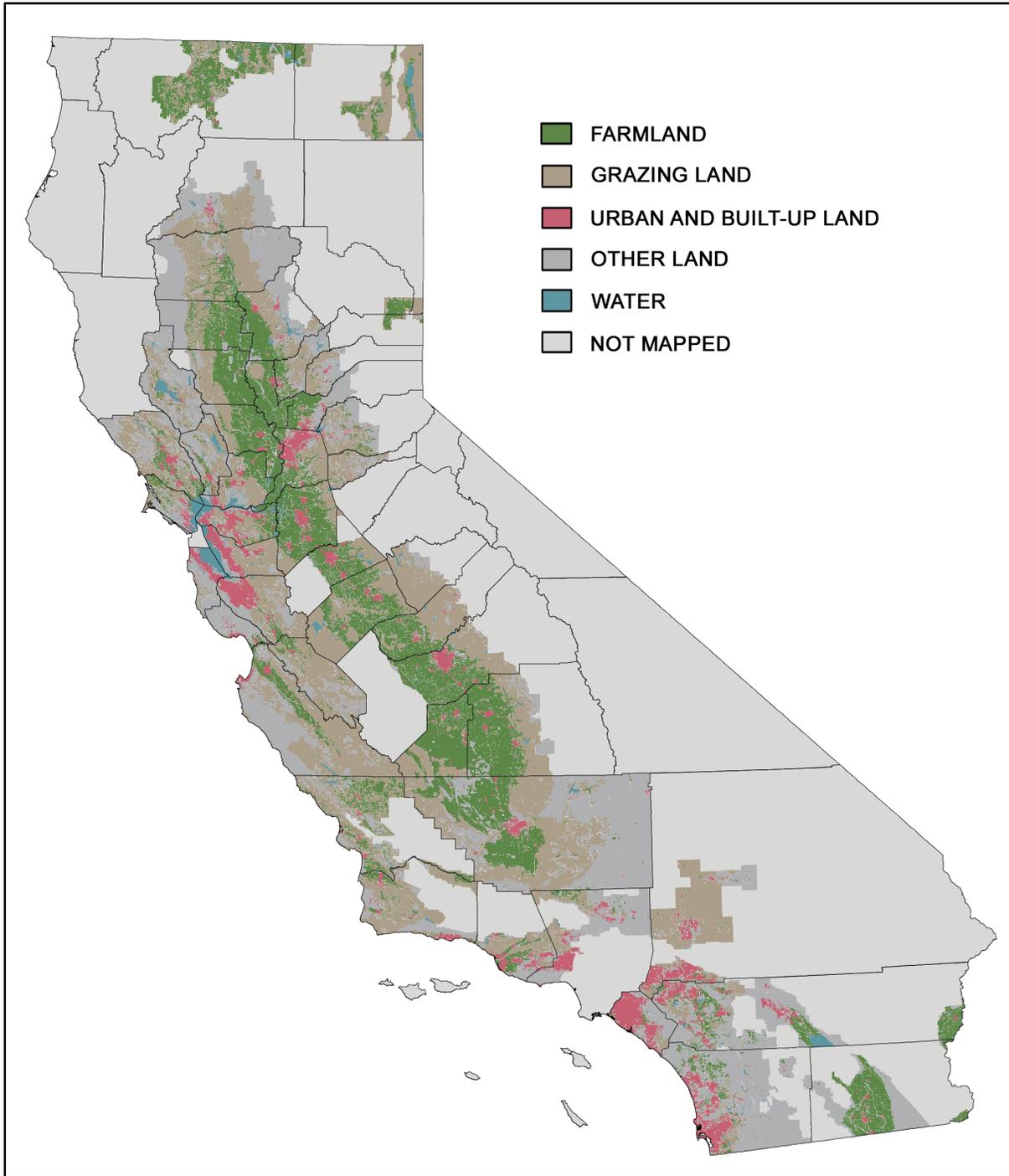
the FMMP to determine the irrigation, cultivation and conversion status of the land in its inventory area.

The FMMP compiles two kinds of farmland maps: Important Farmland Maps for those areas that have modern soil surveys, and Interim Farmland Maps for those areas lacking modern soil survey information and for which there is expressed local concern on the status of farmland.

The first Farmland Conversion Report was released in 1988 and identified farmland changes from 1984 to 1986 for 38 counties, covering 30.3 million acres. Six subsequent reports have included additions to the project area as modern soil surveys became available. The present status of mapping, a total of 44.1 million acres in 48 counties, is shown on Figure 2.

### **MAPPING CATEGORIES**

The following sections provide a brief description of mapping categories used on the Important Farmland and Interim Farmland Maps. A more detailed explanation of the technical parameters which qualify lands to be classified in these categories is contained in the Department of



**Figure 2. Status of Farmland Mapping, 1998**

Conservation's publication *A Guide to the Farmland Mapping and Monitoring Program*, or through the FMMP Web site at [www.consrv.ca.gov/dlrp/fmmp](http://www.consrv.ca.gov/dlrp/fmmp).

**Important Farmland Map Categories**

Important Farmland maps for California use eight mapping categories, generally explained below. The minimum mapping unit for each category is 10 acres unless otherwise noted.

<p><b>PRIME FARMLAND</b> Farmland with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.</p>
<p><b>FARMLAND OF STATEWIDE IMPORTANCE</b> Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.</p>
<p><b>UNIQUE FARMLAND</b> Farmland 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. The land must have been cropped at some time during the two update cycles prior to the mapping date.</p>

<p><b>FARMLAND OF LOCAL IMPORTANCE</b> Land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. See Appendix C for each county's definition of Farmland of Local Importance.</p>
<p><b>GRAZING LAND</b> 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, the University of California Cooperative Extension Service, and other groups interested in knowing the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.</p>
<p><b>URBAN AND BUILT-UP LAND</b> Land occupied by structures with a building density of at least one unit to one and one-half acres, or approximately six structures to a ten-acre parcel.</p>
<p><b>OTHER LAND</b> Land which does not meet the criteria of any other category.</p>
<p><b>WATER</b> Water areas with an extent of at least 40 acres.</p>

**Interim Farmland Map Categories**

Interim Farmland maps are prepared for specific agricultural counties lacking modern soil surveys, such as Butte and Colusa counties, and portions of Kern and Tulare counties. The farmland categories used in these maps are not dependent on modern soil survey information. Two categories of Interim Farmland are mapped in lieu of the categories of Prime Farmland, Farmland of

Statewide Importance, Unique Farmland, and Farmland of Local Importance. The two Interim Farmland categories are explained below.

<b>IRRIGATED FARMLAND</b> Cropped land with a developed irrigation water supply that is dependable and of adequate quality. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.
<b>NONIRRIGATED FARMLAND</b> Land on which agricultural commodities are produced on a continuing or cyclic basis utilizing stored soil moisture.

The categories of Irrigated Farmland and Nonirrigated Farmland are designed to be easily upgraded to Important Farmland categories as the USDA-NRCS completes modern soil survey mapping and the technical soil information becomes available.

The categories of Grazing Land, Urban and Built-Up Land, Other Land, and Water on Interim Farmland maps are identical to those for Important Farmland maps.

Kern and Tulare counties have USDA-NRCS soil surveys for only parts of their overall area, and for these two counties there is a combination of both Important and Interim categories. When modern soil surveys are completed for Interim sections of these counties, as well as Butte and Colusa counties, they will be scheduled for conversion to Important Farmland maps.

### **Land Committed to Nonagricultural Use**

This category was developed in cooperation with local government planning departments and county boards of supervisors during the public workshop phase of FMMP's development in 1982. Land Committed to Nonagricultural Use (Committed Land) information is available as an overlay to the standard farmland information.

<b>LAND COMMITTED TO NONAGRICULTURAL USE</b> Existing farmland and grazing land, and vacant areas, which have a permanent commitment for development.
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Examples of Committed Land would include an area undergoing permanent infrastructure installation or for which bonds or assessments have been issued for public utilities. Committed Land represents planning areas where there are commitments for future nonagricultural development which is not reversible by a simple majority vote by a city council or board of supervisors. Cities and counties provide this information to the FMMP on a voluntary basis.

### **CHANGES TO MAPPING IN 1998**

#### **Farmland of Local Importance**

Legislation passed in 1998 established the opportunity for landowners to create Farmland Security Zones on Williamson Act contracted land that is mapped as Important Farmland by the FMMP. El Dorado and San Joaquin counties

have acted to amend their Farmland of Local Importance definitions to include Grazing Land as part of that definition in order for it to qualify as Important Farmland. The San Joaquin County Board of Supervisors has adopted a new definition for Farmland of Local Importance, and the El Dorado County Board's decision is still pending.

To ensure that the FMMP can continue to distinguish and monitor Grazing Land from cultivated farmland, Grazing Land continues to be identified separately on Important Farmland Series Maps and in conversion tables, but is considered as Farmland of Local Importance in these two counties. The full text of all Farmland of Local Importance definitions can be found in Appendix C.

### **Map Improvements**

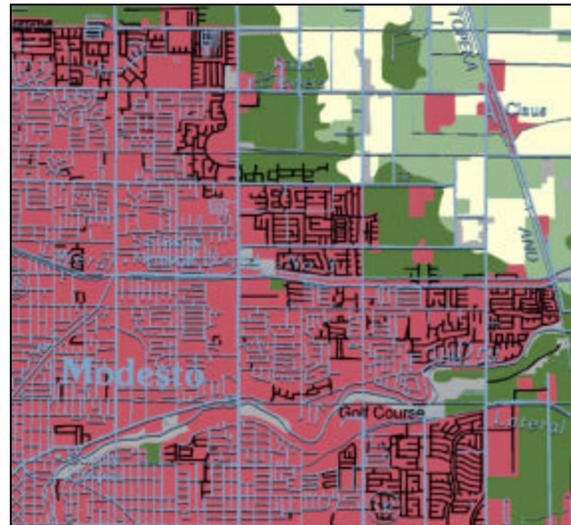
Each time the Important Farmland Maps are updated, efforts are made to make the information more accurate and useful. For example, the first color Important Farmland Maps were published in 1996. During the 1998 update, several improvements were made, ranging from additional place-name and road information to major linework revisions to improve spatial accuracy of specified counties.

### **Base Map Improvements**

The road network, drainage feature and place-name components of the published Important Farmland Maps were compiled from the U.S. Geological Survey (USGS)

1:100,000 planimetric map series. The USGS originally produced these maps in 1970.

Growth in urban road networks, as well as in facilities such as golf courses, landfills, and schools, had made identification of many land use locations difficult on older maps. New roads and place names were added to the existing base map files from sources that included commercial road map files, and government databases, as well as Internet searches.



**Figure 3. Modesto Base Map**  
Modesto area showing 1998 additions to base map in black.

### **Improved Lake Boundaries**

Due to discrepancies between the various sources and scales of base maps, the existing lake boundaries in the Important Farmland files were all replaced during the 1998 update with new linework digitized directly from the USGS 1:24,000 quadrangles. This information was also added to the 1:100,000-scale base maps used

for publishing the color maps, so that all the data is now coincident. Minor differences in water acreage and acreage for adjacent map categories will be evident in a comparison of 1996 statistics as published in the *Farmland Conversion Report 1994 to 1996* and this report.

### **Digital Map Updating Workflow**

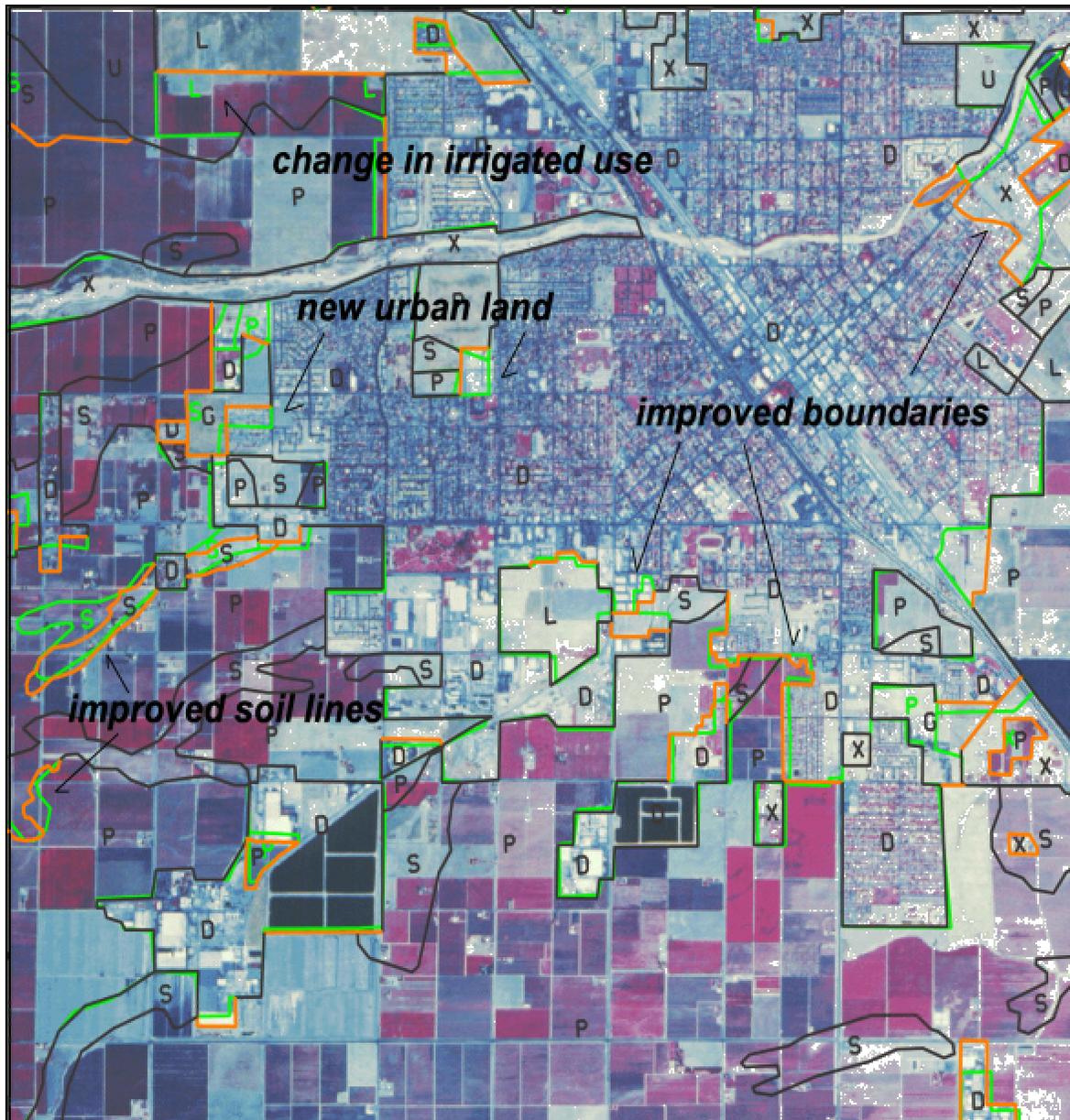
A major change that began during the 1998 Important Farmland Map update was the initiation of an “all digital” map updating workflow. Continuing improvements in computer hardware and software, and the increasing availability of map data in digital format is transforming the FMMP map production process and bringing greater accuracy to the Important and Interim Farmland Maps.

During the 1998 update, digital aerial photography was used as a backdrop for making changes in eight Central Valley counties and major portions of Lake, Monterey, and Santa Barbara counties. The Central Valley counties include Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare and Kings. The same high altitude color infrared imagery that has been viewed with a hand magnifier in the past was scanned and registered to digital road network base maps within the computer workstation. All map products are co-registered so that changes do not have to be estimated during transfer from photo to map. An example from Madera County is shown on the following page.

In addition, the USDA-NRCS has begun issuing soil surveys in digital format. During the 1998 map update cycle, 32 digital soil surveys were released for California, covering all or parts of 25 FMMP counties. This digital data is available from NRCS' Web site ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)). These surveys are being integrated into FMMP's inventory and can be referenced with the Important and Interim Farmland Maps and used for database queries on changes relating to soil categorization in the future.

Having the digital photo and/or digital soils backdrop also helps to point out where lines that were previously drawn in the hand transfer process were incorrect or over-generalized. Linework shifts and corrections were made to each of the counties updated in the “all digital” method, resulting in anomalous conversion figures such as Urban and Built-Up Land converting to farmland categories. While each shift in linework was generally small, usually less than 100 meters, there is an affect on the overall statistics that is unavoidable. In regard to the soil unit linework, corrections were only made in areas where land use conversions were already occurring.

There is a significant amount of labor involved in making the shift to the “all digital” method, thus it is anticipated that this process will be phased in over the next few biennial update cycles. The Sacramento Valley Region, Kern County, and the San Francisco Bay Region will be the next areas of emphasis for this digital conversion process.



**Figure 4. Madera Area Land Use Changes**

The Madera area, with Important Farmland data overlaying color infrared photo. Linework shows unchanged Farmland Map information in grey, old boundary lines in green and new 1998 lines in orange. Text entries identify a number of different types of change.