Chapter III

CONSERVATION/ OPEN SPACE

INTRODUCTION

Prior to 1970, the State Planning and Zoning Act required each city and county to have a General Plan, consisting of a land use element, circulation element, housing element, scenic highways element, and safety element. In response to an increased citizen awareness of the environment, the State enacted legislation requiring the adoption of a conservation element and an open space element. A noise element and a seismic safety element were required in 1971. Since each new element originated in response to specific environmental concerns, there is overlap in the requirements. To avoid duplication of effort in these separate but interrelated elements, the Conservation and Open Space Elements of the Stanislaus County General Plan have been combined as allowed by Sections 65301 and 65302 of the Government Code.

The Conservation element emphasizes the conservation and management of economically productive natural resources. The open space element is closely related to the conservation element in that it also emphasizes conservation for aesthetic, cultural and safety reasons. Open space land is any parcel or area of land or water which is essentially unimproved and devoted to an open-space use as defined as follows:

Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitats for fish and wildlife species;

Open space used for the managed production of resources, including rangeland, agricultural lands and areas of economic importance for the production of food and fiber; areas required for recharge of ground water basins, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply;

Open space for outdoor recreation, including areas of outstanding scenic, historic and cultural value, areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, rivers and streams, and areas which serve as links between major recreation and open space reservations, including utility easements, river and stream banks, trails and scenic highway corridors;

Open space for public health and safety, including areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality, and areas required for the protection and enhancement of air quality.

NATURAL RESOURCES

AGRICULTURAL RESOURCES

Agriculture is, and will continue to be, a major industry and a prime determinant in the economic base of Stanislaus County. Stanislaus County plays a major role in California's agricultural production. In terms of dollars produced from agriculture, this County ranks sixth in California and ninth in the nation. The County ranks as one of the top five producers in the nation for milk, eggs, chickens, turkeys, almonds, walnuts, peaches, beans, silage and cherries. One of the strengths of the County's agriculture is the diversity of the crops produces. (See Table 3-1 for Stanislaus County's leading commodities.)

TABLE 3-1

STANISLAUS COUNTY LEADING COMMODITIES

1985 RANK	COMMODITY	VALUE	1984 RANK
1	MILK, ALL	$211,949,000	1
2	CHICKENS, ALL	118,433,000	2
3	ALMOND MEATS	66,009,000	4
4	CHICKEN EGGS, ALL	60,101,000	3
5	CATTLE & CALVES, ALL	35,442,000	5
6	PEACHES, ALL	31,434,000	6
7	WALNUTS, IN-SHELL	25,620,000	8
8	TOMATOES, ALL	23,668,000	10
9	TURKEYS, ALL	21,625,000	12
10	SILAGE, ALL	19,504,000	7

The gross agricultural income for 1985 is estimated to be $772,299,380 which reflects a decrease from the previous year. This is the third decrease in the last four years of gross agricultural income. (Refer to Table 3-2). A summary of the agricultural products produced, the acreage harvested, and the estimated value for 1984 and 1985 is depicted in Table 3-3.

TABLE 3-2

FIVE YEAR SUMMARY IN THOUSANDS OF DOLLARS

	1980	1981	1982	1983	1984	1985
Field Crops	$ 97,969	$ 95,731	$ 82,943	$ 87,978	$ 89,441	$ 82,331
Seed Crops	2,692	4,080	2,395	1,625	1,255	2,969
Vegetable Crops	34,277	40,678	41,401	43,038	47,049	50,283
Fruit & Nut Crops	200,687	177,259	173,461	120,770	177,040	163,048
Nursery Products	12,910	16,333	13,249	18,021	12,763	12,015
Livestock & Poultry	144,120	166,001	150,504	167,411	171,133	177,578
Livestock & Poultry Products	247,837	276,876	275,458	278,366	292,183	280,106
Apiary Products	3,092	4,227	4,226	3,531	3,759	3,969
TOTALS	$743,584	$781,185	$743,637	$720,740	$794,623	$772,299

TABLE 3-3

ITEM	YEAR	HARVESTED ACREAGE	ESTIMATED VALUE
Apiary Products	1985		$ 3,968,680
	1984		3,759,260
Field Crops	1985	611,390	82,330,900
	1984	619,843	89,441,000
Fruit & Nut Crops	1985	121,899	163,048,000
	1984	118,007	I77,040,000
Livestock & Poultry	1985		177,578,000
	1984		171,133,000
Livestock & Poultry Products	1985		280,106,400
	1984		292,182,800
Nursery Products	1985	734	12,015,400
	1984	725	12,762,600
Seed Crops	1985	4,525	2,969,000
	1984	3,200	1,255,000
Vegetable Crops	1985	43,603	50,283,000
	1984	43,066	47,049,000
TOTAL	1985	782,151	$772,299,380
	1984	784,841	$794,622,660

The reason for our local crop diversity and productivity has been the result of fertile soils, generous sunshine and the availability of quality, low cost water. Also, agricultural success in our county can be attributable to various programs by both governmental agencies and private industry to keep plant disease and insects under control.

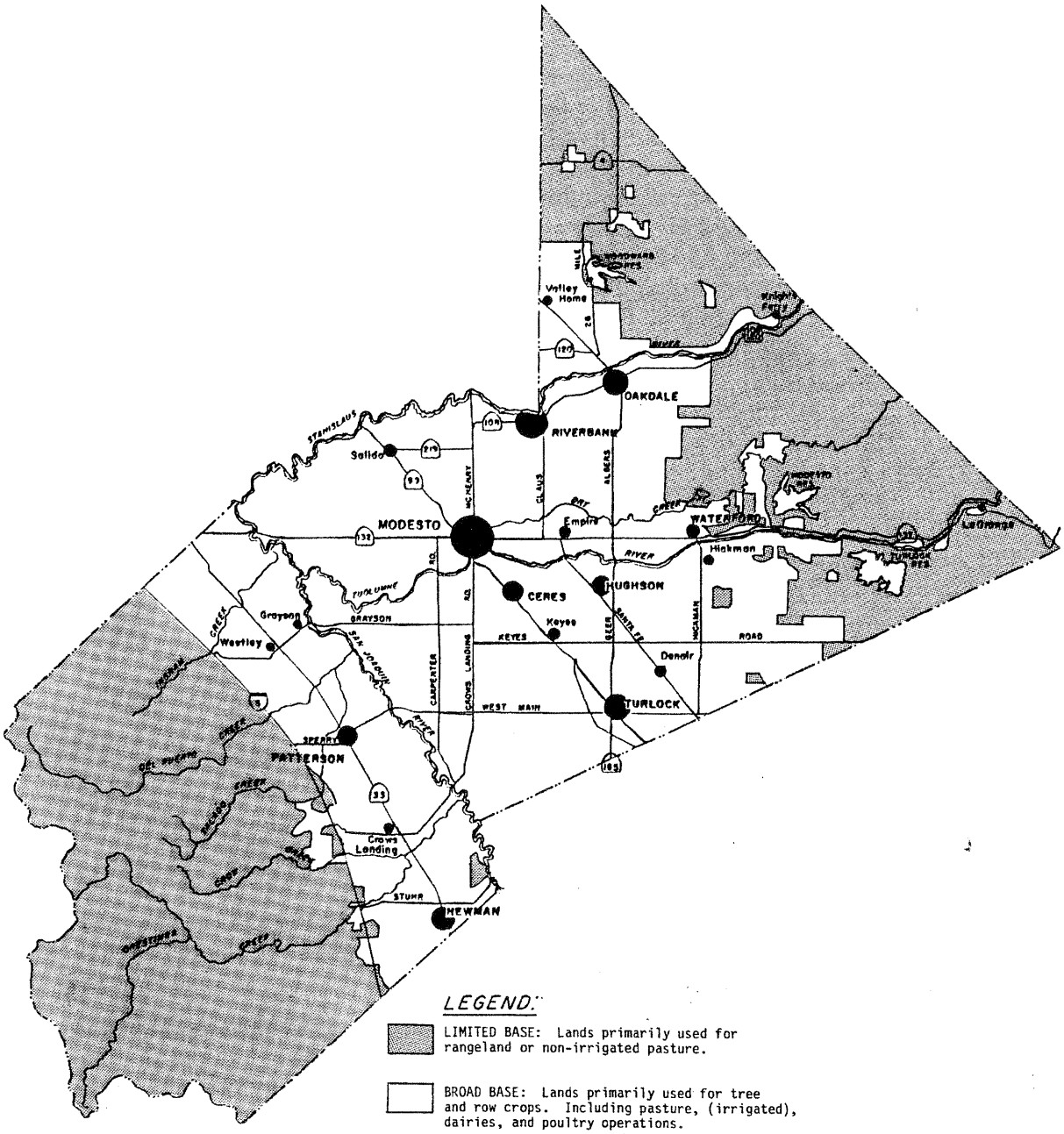
Along with agricultural production as an important economic factor within Stanislaus County is the processing of agricultural products. In 1984, the value of agricultural production in Stanislaus County was $805.2 million, and the value of the processing of agricultural products was estimated to be $1.4 billion. In a report titled, "Economic Impacts of Agricultural Production and Processing in Stanislaus County", by Armen V. Sarquis, a series of multipliers were developed to relate the direct costs of production and processing to the economy of the County. Overall, one dollar spent on production and processing represents a $2.17 return to the area. (The figure is $3.20 for 1986.) Using multipliers from the Economic Impact Study, this represents a total value to the County of 4.78 billion dollars, and was responsible for creating 45,198 full-time equivalent jobs. The following table summarizes the economic impact by commodity group:

Commodity Group	Production Value (mil.$)	Added Value of Processing (mil. $)	Economic Impact Value (mil. $)	Increase in Regional Personal Income(mil. $)	Full-Time Equivalent Jobs Created (number)
Field Crops	$ 89.4	$ 27.8	$ 225.0	$ 80.1	1,902
Seed Crops	1.1	3.2	8.9	2.6	63
Vegetable Crops	48.3	672.2	1,584.1	479.7	14,481
Fruit & Nut Crops	180.8	456.5	1,439.1	593.1	15,627
Livestock	41.7	7.7	98.3	24.2	761
Poultry Products	217.9	152.5	734.6	155.2	6,398
Nursery Products	12.8	5.3	37.0	17.7	1,025
Dairy	213.1	76.5	652.1	215.8	4,941
TOTAL	$ 805.2	$1,401.7	$4,779.1	$1,568.4	45,198

NOTE: Data From "Economic Impact of Agricultural Production and Processing on Stanislaus County" by Armen Sarquis and "Estimated Economic Impacts in California: The San Joaquin Input-Output Model" by George Goldman and Marian O'Regan.

In addition to the broad base agricultural lands where the majority of agricultural crops, dairy and poultry products are produced, there is an abundance of grazing lands in the foothill areas of the County that are becoming increasingly important to cattle producers and dairy farmers. These limited base agricultural lands are capable of yielding a substantial contribution to the overall agricultural base of the County. Approximately half of the area of the County is designated as limited base agricultural lands used primarily for rangeland or non-irrigated pasture. (See map on page 3-7)

LIMITED/BROAD BASED AGRICULTURAL LANDS



SOURCES: Stanislaus County Department of Planning and Community Development

SOIL RESOURCES

The continued viability of agricultural crop production is related directly to the preservation of its highly productive soils. Although there has been much discussion with respect to the definition of prime and potentially prime agricultural land, the most prevalent definitions are as follows:

Prime Agricultural Land

(a) All land which qualifies for rating as Class I or Class II in the Soil Conservation Services' Land Use Capability Classifications.

(b) Land which qualifies for rating 80 through 100 in the Storie Index Rating.

(c) Land which supports livestock used for the production of food and fiber and has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.

(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops which have a non-bearing period of less than five years and will normally return during the commercial bearing period on an annual basis from production of unprocessed agriculture plant production not less than $200.00 per acre.

(e) Land which has returned from the production of unprocessed agricultural plan products and an annual gross value of not less than $200.00 per acre for three of the previous five years.

Potential Prime Agricultural Land - Lands which have the capacity of being made prime through normal agricultural investment and practices. (See map on page 3-10)

The most productive agricultural soils within Stanislaus County are being subjected to pressures which, if left unchecked, will substantially diminish their continued ability to produce. These pressures result first from desires for rapid outward growth on the fringe of urban areas. A second form of pressure far more subtle, but equally destructive, is the slow reduction in parcel size within outlying agricultural areas.

In 1983, in an effort to protect and conserve its valuable agricultural land, Stanislaus County adopted a 40-acre minimum parcel size requirement for the majority of the County's agriculturally zoned land. There are approximately 617,000 acres (68.3% of the total agricultural land in the County), within this classification.

An additional factor which is not growth related, but which nevertheless has become increasingly important to the maintenance of Stanislaus County soils, is proper soil management. This need is most evident west of the San Joaquin River where soils were developed from marine sediments, which were already high in salts coupled with low-quality irrigation water, and a high water table has produced increasing salt and mineral concentrations in the soils.

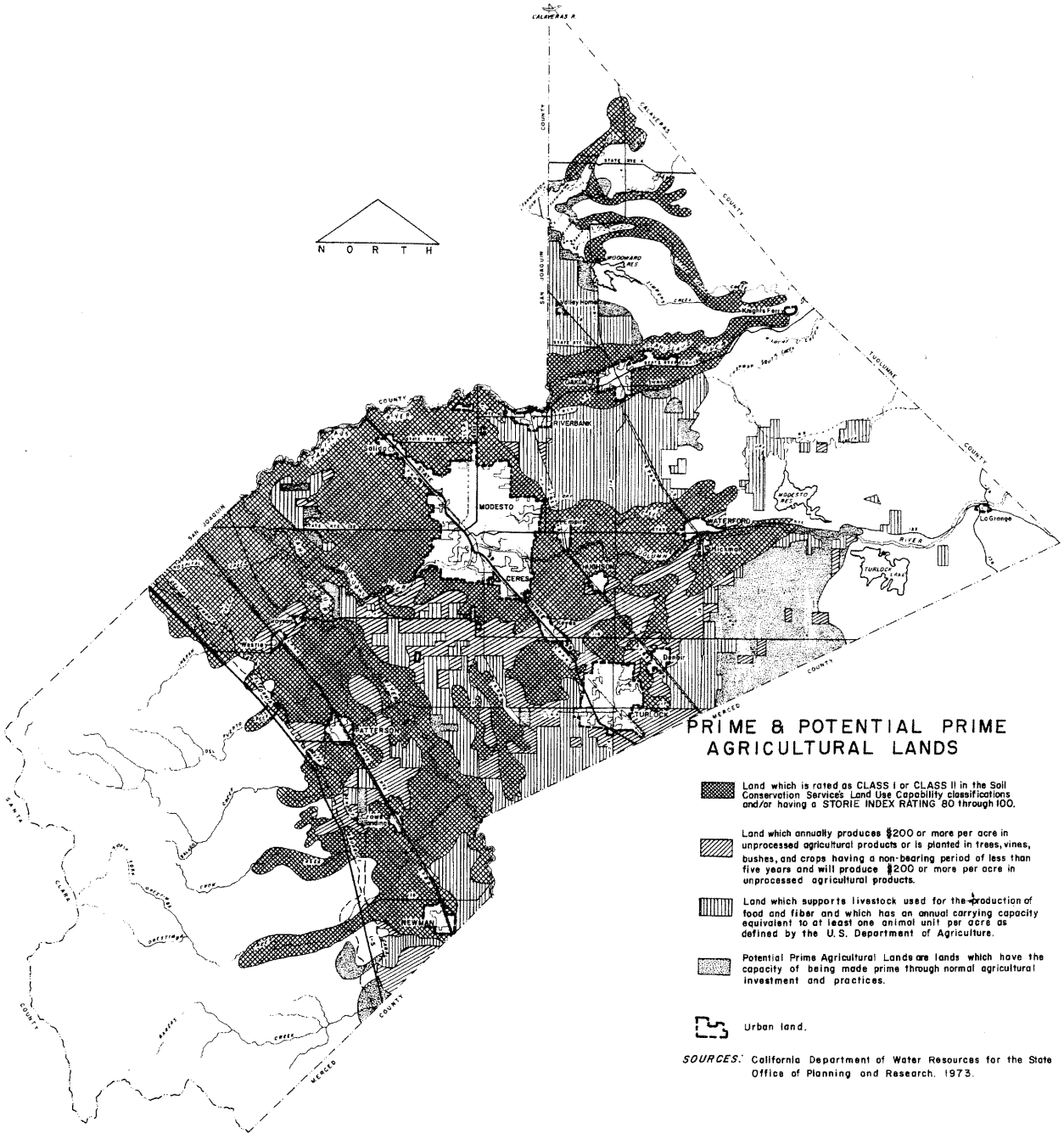
Traditionally, agriculture has been practiced on soils which were free of troublesome salts. Undoubtedly, more irrigable lands would have been under production if it were not for the uncertainties resulting from the development of salt-affected soils. Recently, salt-affected lands have been developed at an increasing rate in Stanislaus County, as well as in other areas of California. In arid regions such as this, leaching is not very effective, and the salts may not be transported away due to the lack of adequate rainfall. High evaporation and transpiration rates also tend to concentrate salts by decreasing the water available for leaching. Poor drainage, low quality ground water for irrigation, and continued use of septic tanks in areas of poor soil permeability, are examples of poor soil management leading to decreased agricultural productivity. Because of the poor quality soils west of I-5 and rugged terrain, there is a 160-acre minimum parcel size requirement. Approximately 236,600 acres or one-quarter of the County has this parcel size designation.

Another increasingly important factor in the destruction of soil is erosion. The soil on nearly one-fifth of California's farmland is being carried away by wind and water faster than it's being replenished by nature. The U.S. Conservation Service says that much of the erosion on more than one million acres is the result of irrigation practices. In addition, more than half of the State's nonirrigated cropland and about one-third of privately owned grazing land is suffering serious erosion, the latter as a result of overgrazing.

Colloidal clay and organic matter are the base of most of the soil's fertility. The loss of this material from eroding fields cause considerable fertility loss. Topsoil, which contains higher concentrations of available nutrients than subsoil, is lost first. Thus, eroding soil becomes progressively less fertile. Productivity losses, as indicated by crop-yield declines, have been measured in various locations in the State by numerous sources, including American Farmland Trust and the U.S. Department of Agriculture Soil Conservation Service.

New farm practices that increase productivity in the short run are prime causes of soil destruction in the long run. The old practice of plowing the weeds under or letting them grow as a cover crop is replaced by spraying that kills weeds, and leaves the soil vulnerable to erosion for months.

Another concern to farmers resulting from wind erosion is the damage caused by abrasion. Flying soil particles do considerable damage. Plants seldom suffer permanent damage solely from the flogging action of high winds, but severe damage is done, especially to younger plants, when the erosive wind carries abrasive soil material. Damage ranging from delayed growth and reduced yield to actual death has been inflicted on several types of crops.



PRIME & POTENTIAL PRIME AGRICULTURAL LANDS

Land which is rated as CLASS I or CLASS II in the Soil Conservation Services Land Use Capability classifications and/or having a STORIE INDEX RATING 80 through 100.

Land which annually produces $200 or more per acre in unprocessed agricultural products or is planted in trees, vines, bushes, and crops having a non-bearing period of less than five years and will produce $200 or more per acre in unprocessed agricultural products.

Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.

Potential Prime Agricultural Lands are lands which have the capacity of being made prime through normal agricultural investment and practices.

Urban land.

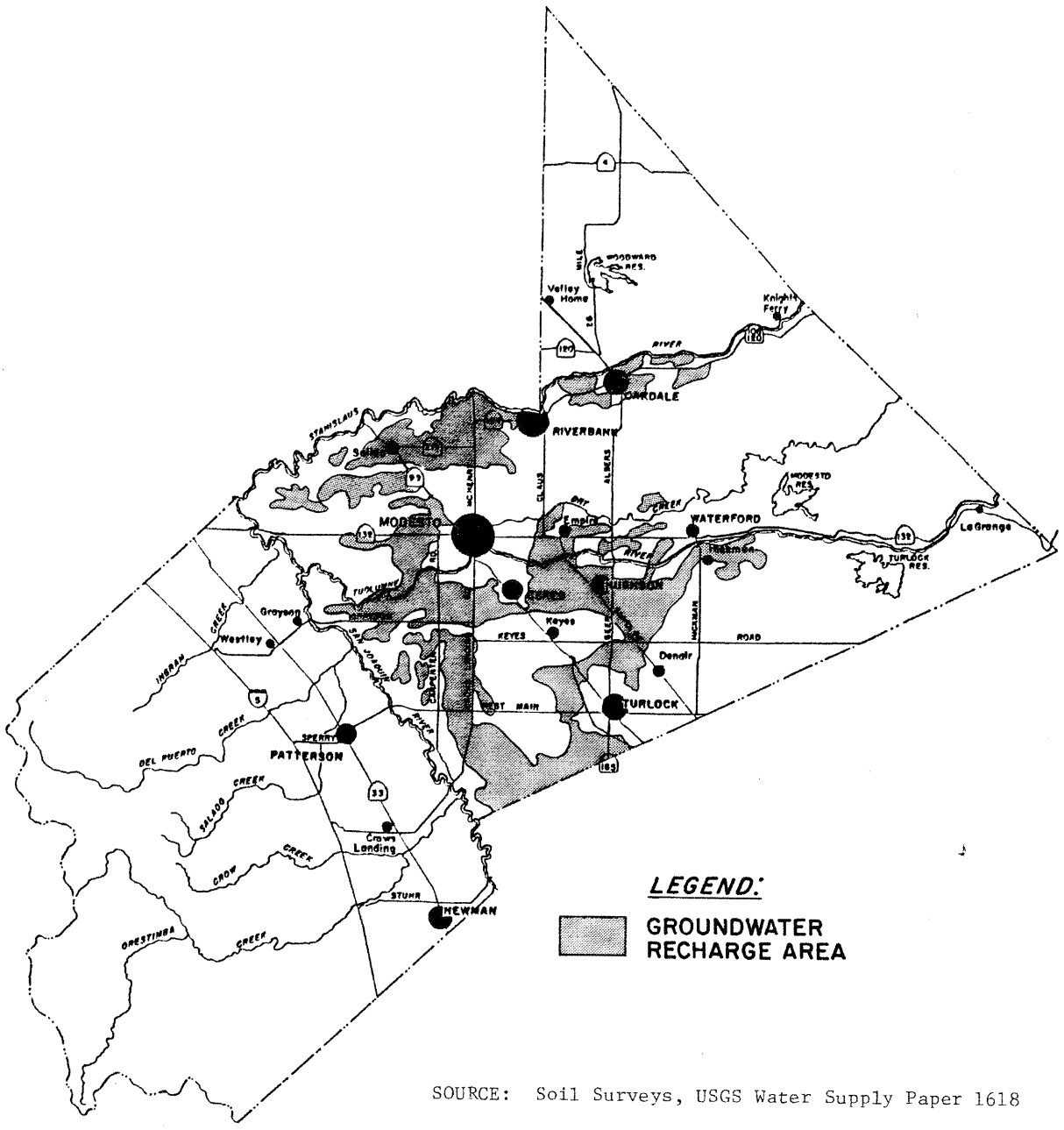
SOURCES: California Department of Water Resources for the State Office of Planning and Research. 1973.

WATER RESOURCES

Water is one of our most valuable natural resources. It is necessary to sustain human life and to produce a diversity of agricultural crops. Agricultural and urban water supplies for Stanislaus County originate from both ground water and surface water. Irrigation of agricultural land is the largest consumptive use of water in the County. Extensive energy efficient gravity flow irrigation systems have been developed mainly since the turn of the century. Prior to the coming of the railroads, the valley was devoted to cattle raising. By 1880, it had switched to dry farming and became one of the major grain producers of the world. As the population increased, farming diversified and irrigation was introduced. The Turlock and Modesto Irrigation Districts were the first such districts formed in California. Today, Stanislaus County has 5 irrigation districts and 14 water districts. The main sources of irrigation water are the three major rivers: the Stanislaus, Tuolumne, and San Joaquin, which flow through the County. These rivers all contain water of excellent quality at their sources in the Sierra Nevada Mountains, but as they flow through the Valley, their quality is impaired by each successive use. Both agricultural and domestic use-and-return contribute to this degradation. As flows decrease seasonally, concentrations of pollutants increase, particularly in the San Joaquin, which serves as a drain for return water and domestic and industrial wastes through the entire San Joaquin Valley. Quality of the Stanislaus River is somewhat deteriorated at its confluence with the San Joaquin River. The Tuolumne River's condition has deteriorated more than the Stanislaus River due to agricultural return wastes and gas well wastes by the time it reaches the San Joaquin River.

Ground water is the major source of domestic and industrial water in Stanislaus County, and is used as a supplemental water supply for irrigation. The quality of ground water is determined by the geologic formations through which it filters and thereby cannot be controlled. However, it is utilized directly by people and can be controlled to that extent. Ground water recharge occurs by water conducting through the gravels of major streams and rivers, seepage from reservoirs, irrigations and rainfall on well drained alluvial soils in the valley portion of the County. Rainfall is not a dependable recharge source since the average annual County rainfall is only 12 inches and of this, only about half can be considered an effective recharge source. (See map on page 3-12.)

GROUNDWATER RECHARGE AREAS



SOURCE: Soil Surveys, USGS Water Supply Paper 1618

The ground water situation west of the San Joaquin River is substantially different from the rest of the County to the east. There are three major problems which exist: a rising, perched water table, saline build-up in the soil, and an increasing imbalance in the ground water body. These conditions exist through combinations of canal seepage, excessive irrigation and poor quality irrigation waters. The cumulative effect of these problems can reduce crop yield and soil productivity. Where the water table has risen to within six feet of the surface, crop types have been changed from highly profitable row and tree crops to less profitable field crops. The major effects of a shallow water table are an increase in salt toxicity, the drowning of crops with deep root systems (such as orchards), and plant disease such as fungi, root rot, and crop scalding. In attempting to reduce the salt imbalance, excessive amounts of water have been put in the soil, causing serious drainage problems. With the water perched so near the surface, this excessive irrigation water has nowhere to go. The water table has continued to rise, increasing the soil salinity through upward movement of the saline waters and deposition of salts in the surface layers of the soil as evaporation occurs. To combat this problem, tile drains, which release return water to the San Joaquin River, have been installed in some areas.

The decreasing ground water quality is having adverse effects on domestic water supplies, as well as the agricultural lands. As ground water becomes unacceptable for domestic use, other sources will have to be found. One solution that has been suggested is the use of water from the Delta Mendota Canal for agricultural purposes.

The San Joaquin River carries substantial amounts of agricultural return flows which degrade the water quality. It is more severe here than in other rivers due to very low summer water flows. Agricultural runoff contributes up to fifty percent of the summer flow of the San Joaquin River. This runoff contains sediments, pesticides, salts, and nutrients.

Several methods have been identified to help control various types of ground water and surface water contamination. There is no definitive list of "best management practices". Each problem is site-specific, and each farming area and operation is unique, requiring its own methods of controlling water pollution. Individual farmers will need to determine which farm practice, if any, is appropriate in their problem situations. The practices outlined below have worked successfully on many farms, but individuals must use their judgement in determining which methods are best for them.

It is recognized that many farms throughout the San Joaquin River basin utilize a large number of the practices outlined below. However, in some locations, there is an opportunity and a need to promote better adoption of the practices listed below.

1. Sediment in Surface Water: Some practices which reduce soil erosion help to prevent soil particles from becoming sediment by protecting the soil from the eroding action of water.

   (a) Use of cover crops in vineyards and orchards.
   (b) Keep erosion-prone soils in permanent cover, especially along waterways to prevent bank erosion and siltation.
   (c) Use proper grazing management.
   (d) Use no-till and low-till practices.
   (e) Use crop planting and land grading plans designed to minimize erosion.
   (f) Match irrigation methods to soil and topographic conditions; avoid runoff.
   (g) Construct in-channel structures to reduce runoff velocities.
   (h) Use tailwater recovery systems.
   (i) Construct sediment detention ponds. These are very effective when coupled with tailwater recovery systems.

2. Pesticides in Surface Water: Some pesticides are persistent and adhere to soil particles for many years. Fields once sprayed with persistent toxic chemicals pose a potential threat to nearby aquatic life long after application.

   (a) Implement the erosion and sediment control practices suggested previously.
   (b) Avoid irrigation tailwater runoff during application of pesticides.
   (c) Follow pesticide label directions and County Agricultural Commissioner's permit requirements.
   (d) Use the least toxic, least persistent chemicals.

3. Pesticides in Ground Water: Pesticides have occasionally been introduced into ground water accidentally through poorly designed or poorly maintained well and irrigation systems.

   (a) Install approved back-flow prevention devices or air gaps between water source and irrigation system.
   (b) Properly seal new wells.
   (c) Follow guidelines for safe pesticide handling and storage.
   (d) Follow an integrated pest management approach to pest control.
   (e) Store, mix, and dispose of pesticides safely.
   (f) When applying chemicals to sandy soils, choose an effective material with the lowest potential to move in the soil.

4. Nitrates in Surface Water: Although much agricultural nitrogen reaching the San Joaquin River is from tile drainage, surface runoff can also be important.

   (a) If fertilizers are applied in the irrigation water, use a tailwater recovery system.

5. Nitrates in Ground Water: Balancing crop nitrogen needs with grower-supplied nitrogen and other sources makes sense economically and evnironmentally.

   (a) Fertilize according to crop requirements.
   (b) Use plant tissue and/or soil tests.
   (c) Apply manures at rates comparable with crop nitrogen requirements.
   (d) Evaluate all sources of nitrogen available to the crop. Include manure, cannery wastes, crop residues, and nitrates in irrigation supply.
   (e) Install approved back-flow prevention devices on wells.

6. Salinity in Surface and Ground Water: This is a complex problem and its solutions demand coordinated action at farm, district, and river basin (regional) levels. Proposals for a valley drain are being actively pursued as part of a basin-wide solution.

   On-farm management consists of :

   (a) "Good irrigation management", which describes irrigation systems capable of supplying uniform, precise volumes of water to a crop at high efficiency and in an economically realistic manner.
   (b) Installation of buried drainage networks to maintain water tables below the root-zone (in areas of perched saline water tables).

District drain water management consists of:

(a) Installation of properly engineered and maintained systems to collect and transport drain water produced by on-farm systems. Disposal requires identification and utilization of salt sinks.

Regional drain water management would include:

(a) Identification of possible additional uses for drain water.
(b) Conveyance of drain water to a salt sink or place of further use.
(c) Reduction of import of salts in irrigation water supplies.
(d) Use of dilution water where available (New Melones).
(e) Establishment of recharge areas and utilization of winter runoff for recharge of ground water.

Water is truly the most valuable resource to everyone in Stanislaus County. It is needed for the survival of all living things; human beings, plants, and animals. Every effort should be made to insure good quality water before it becomes cost prohibitive.

The ground water east of the San Joaquin River does not have the serious problems that exist on the west side. Depth of the water table varies from only a few feet around Turlock to several hundred feet. The overall quality of ground water is good, although some chemicals are present in varying amounts that might eventually cause some problems. These are chloride, nitrate, arsenic, sodium, calcium, magnesium, carbonate, DBCP, bicarbonate, and sulfate. Ground water pumping around Modesto, improperly sealed wells, and past dairying practices have contributed to increasing concentrations of certain chemicals.

Around Modesto the overall ground water supply appears good, except in the extreme eastern portion. Extensive pumping coupled with insufficient recharge (due to continued covering of recharge areas with impervious surfaces), has created a cone of depression in the Modesto area water table. Urbanization of agricultural lands surrounding Modesto, (which are also prime water recharge areas), will likely cause this cone of depression to continue to increase in size. Aside from lowering the amount of water available, this cone of depression has also caused an increase in the chloride levels of the ground water according to a study by the U.S. Geological Survey.

Another recent issue facing California is the water shortage problem in Southern California. The problem is simple. The heavily populated areas of Southern California need additional water. The solution is the subject of a heated political debate which pits Northern California politicians, who have the water, against southland politicians who have the votes. Stanislaus County has been targeted by a recent Assembly Office of Research study titled "Water Trading, Free Market Benefits for Exporters and Importers", which erroneously states that we have a surplus of water, and that this water should be made available to water users to the south. The report also suggests that our local farm land should be idled, thereby increasing the surplus. Little consideration has been given to what the impact of that water transfer might be on our local economy.

The Stanislaus County business community relies heavily on agriculture. Without agriculture, the canneries, the wineries, the poultry and creamery operations, and the nut producers which employ thousands of workers, would soon disappear.

Many Southern California water interests are trying to capitalize on the current economic agricultural recession by exploiting the concept of water trading as a quick fix to satisfy the mounting debts of the farming community.

Stanislaus County must carefully conserve one of its most valuable natural resources. For without water, this County, along with many other agricultural counties in California, would cease to be major food producers in the United States and the world.

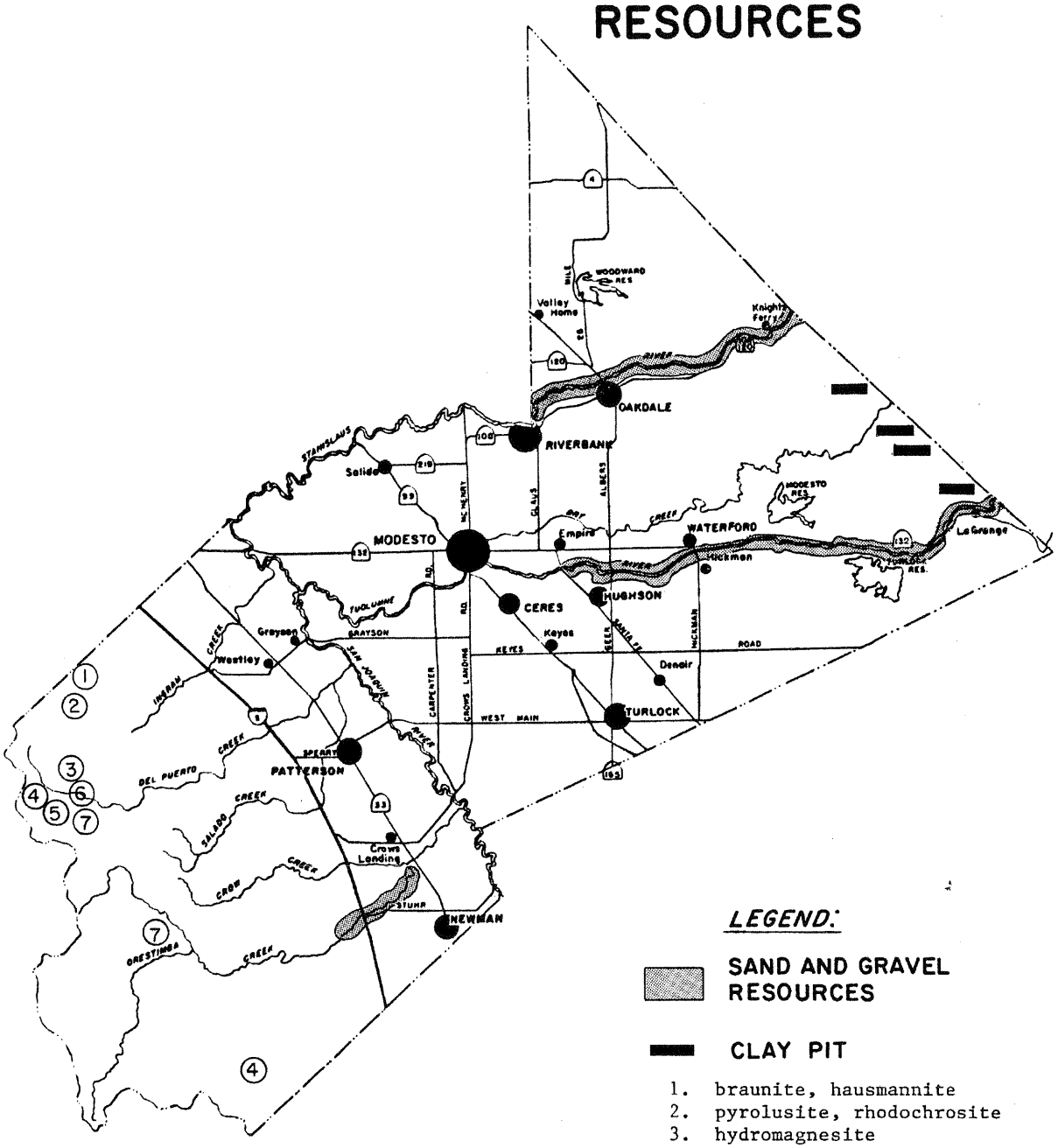
MINERAL RESOURCES

Stanislaus County is not prolific in its extractive resources. Some magnesite has been produced commercially, and attempts have been made to market a variety of manganese minerals found in the western portion of the County. Sand and gravel deposits presently constitute the only significant extractive resource from a commercial viewpoint. Numerous exploratory oil and gas wells have been drilled within the County. Although none of the wells are producing commercially, the underlying geological structure of the County indicates oil or gas may be present which could lead to the likelihood of more exploration.

Minerals found in Stanislaus County include: bementite, braunite, chromite, cinnabar, garnet, gypsum, hausmannite, hydromagnesite, inesite, magnesite, psilomelane, pyrobrsite, and rhodochrosite. Small deposits of gold, clay, and lead are also known to exist. However, present economic conditions make commercial extraction of these minerals difficult or impossible.

The majority of sand and gravel deposits are a result of stream deposition or dredge tailings. The most significant deposits from a commercial outlook are found in old stream beds and adjacent to the rivers and streams in the eastern portions of the County. The only significant sand and gravel deposits on the westside are found along Orestimba Creek east of I-5, and fine-grained sand deposits adjacent to the San Joaquin River. (See map on page 3-17)

MINERAL RESOURCES



LEGEND:

SAND AND GRAVEL RESOURCES

CLAY PIT

1. braunite, hausmannite
2. pyrolusite, rhodochrosite
3. hydromagnesite
4. magnesite
5. chromite
6. psilomelane
7. cinnabar, garnet

Market demand, competition, excavation expenses, material quantity and quality all affect the costs of sand and gravel. However, transportation costs are a major factor affecting the siting of sand and gravel extraction and processing facilities. Sand and gravel excavations need to be near their market. This need to be within close proximity to the market area points toward the general incompatibility of gravel extraction and processing within urban areas, due to excessive noise, dust, and heavy truck traffic.

According to the State of California Division of Mines and Geology, the majority of Stanislaus County's sand and gravel deposits are situated beneath prime agricultural soils and riparian areas. Prior to 1975, excavations have taken place on these lands with little consideration given to eventual rehabilitation, consequently resulting in the loss of the land for agricultural uses and wildlife habitats. Since then, any excavation and rehabilitation must comply with the Surface Mining and Reclamation Act of 1975, which is reproduced in the appendix of this element. Any sand and gravel excavations and rehabilitations are regulated through the use permit procedure or other similar review processes utilizing the guidelines set forth by the Surface Mining and Reclamation Act of 1975, to minimize undesirable impacts.

FISH AND WILDLIFE INVENTORY

Numerous species of plant and animal life are found in Stanislaus County which have aesthetic, recreational, economic, scientific or educational value to the citizens of the area. Preservation and regulation of the widest possible varieties of this wildlife is necessary if a balance of nature is to be maintained.

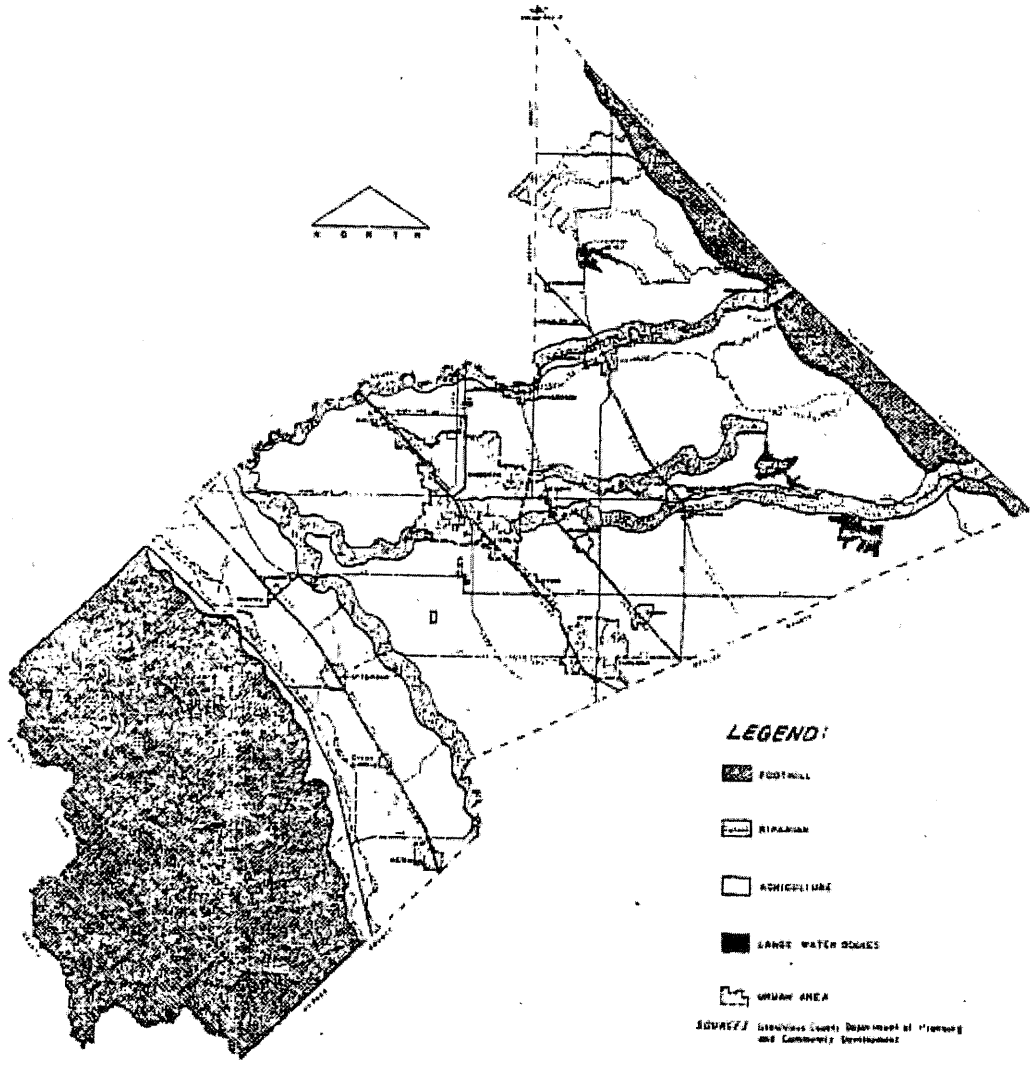
Four basic wildlife habitat types can be found in Stanislaus County. These are foothills (eastern and western borders of the County), agricultural land (throughout the County on the valley floor), riparian ecosystems (along the margins of permanent watercourses), and wetlands (marshes, sloughs, reservoirs, and sewer ponds). (See map on page 3-19)

1. The Foothills

There are two distinct areas of rolling foothills in Stanislaus County: the innermost ranges of the Diablo Range (Coast Ranges), located essentially west of Interstate 5 and rising upwards to the Stanislaus/Santa Clara Counties border and the foothills of the Sierra Nevada which extend somewhat into eastern Stanislaus County providing natural variation from the neighboring grasslands and agricultural areas. The Diablo Range foothills within the County contain approximately 28% of the total County land area. The Sierra Nevada foothills within the County comprise approximately 5% of the total County land area.

Many vegetation associations occur in the foothills of the County. While Diablo Range and Sierra Nevada foothill vegetation are similar in many respects, there are clear differences between them as well. In the Diablo Range, most vegetation falls into grassland, chaparral or woodland categories, where as in the Sierra Nevada foothills, chaparral vegetation is nearly non-existent.

HABITAT TYPES



Grasslands are found commonly throughout the foothill areas of the County, but they are predominantly comprised of introduced (non-native) annual grasses. Some native grasses (both annual and perennial), are found at scattered locations within the County, but the grassland element of the County is clearly of the California Annual Grassland community, dominated by such introduced grass species as bromes, wild oats, fox-tail barley, and introduced forbes such as filaree, wild mustard, wild radish, vetch, clovers, and others. Native grasses appear to survive best in narrow canyons, on steep slopes, or in rarely visited areas. Cattle grazing has clearly been the most negative influence on the success of native grasslands.

Chaparral is characterized by densely compacted and drought-resistant shrubs. Chaparral vegetation is dominated by varieties such as manzanita, buckbrush, black sage, and chamise. An understory of native grasses and other wildflowers make the chaparral vegetation zone attractive and interesting in the winter and spring. Chaparral shrubs normally have small leaves with a thick cuticle, thusly reducing transpiration and evaporation rates for water conservation purposes. The wildflower element is seasonal and ephemeral, being stimulated in winter, blooming in spring and becoming dormant during summer and fall.

Woodlands are vegetation associations which have large trees as their major component. A variety of woodlands exist within the Diablo Range portion of the County:

(a) Riparian Woodlands are found along creeks such as Del Puerto Creek, Salado Creek, and Orestimba Creek. These are lined with willows and cottonwoods and also maintain other typical riparian plant species.

(b) Juniper Woodland - California Juniper occupies numerous sites on dry slopes of inner canyons.

(c) Foothill Woodlands are lower woodlands of Digger Pine, Buckeye, Interior Live Oak, Valley Oak, and Blue Oak giving way to purer stands of Blue Oak and Interior Live Oak at higher elevations.

These three very basic vegetation types can be found as discrete units, but are more often found in a variety of combinations of each other, with transition zones between them. Factors which contribute to the vegetation composition of any particular location include soil type, slope aspect, and steepness, elevation, water availability, grazing intensity, and (in some cases) fire. Generally, grasslands are found at low elevations. They give way to chaparral and woodlands at higher elevations.

Sierra Nevada foothills are both similar and different than those of the Diablo Range. A very large number of similar vegetation and plant and animal species exist in both locations. Grasslands and woodlands exist commonly in the Sierra foothills portion of Stanislaus County. While chaparral exists at higher elevations in adjacent counties, little exists in the Sierra foothills of this County.

Grasslands exist extensively, again, with a preponderance of introduced (alien) grass species (oats, bromes, fox-tails), as well as other introduced non-grass herbs. No area of extensive native grasslands has been identified in this region of the County, even though numerous native grasses grow, interspersed within non-natives. Numerous rare plants have been identified as growing in the Stanislaus County Sierra Nevada foothills.

Vernal pools, historically known as "hog wallows" are shallow depressions in the grassland topography. They hold water intermittently or seasonally because of their impermeable substrates. Water collects in them from winter rainfall and persists into the spring. Such vernal pools provide interesting habitat for plants, invertebrates and vertebrates. More than 100 California wildflowers have been identified that grow almost exclusively within such vernal pools or similar, temporarily wet habitats.

In addition to these plants, these pools are also home for hundreds of thousands of Tiger Salamander (Ambystoma tigrinum ssp. californicum) and Western Spadefoot (Scaphiopus hammondii). These two amphibians are considered as species of concern by many biologists as their habitat is reduced annually in California. Many other vertebrate and waterfowl species utilize this enormous intermittent pool complex annually. Grasslands provide productive habitat for hundreds of vertebrate and invertebrate species. Grasshoppers, other insects, birds, and rodents provide a consumer base for predatory species. Grasslands are excellent habitat for numerous buteos, falcons, accipters and eagles. Many species of reptiles are also found here. Larger mammals, like coyote, skunks, rabbits, and hares, are common.

Woodlands of the Sierra Nevada foothills of this County are of predominantly Digger Pine and oaks. The predominate oaks are Blue Oak, Interior Live Oak and Valley Oak. There is often an understory of shrubs of different species as well. Woodland vegetation is designated as a critical primary habitat (California Department of Fish and Game), as it supports a wide variety of game species. Additionally, many other non-game vertebrates flourish in this habitat.

The woodland vegetation association is also designated as a critical primary habitat. It supports a wide variety of wildlife. A few common bird species found are the Acorn Woodpeckers, common crows, California Quail, doves, hawks, and eagles. Amphibians are fairly common, such as the California Newt and the Western Toad. Reptiles found are the Western Fence Lizard, Common King Snake, and Western Rattlesnake. Mammals common to the woodland area include bats, gray foxes, coyotes, deer, raccoons, and rodents. Numerous insects are also present.

Two endangered species are believed to be present in the foothill areas, according to the California Department of Fish and Game. The Blunt Nosed Leopard Lizard is thought to exist in both the eastern and western foothills, although there has not been a reliable sighting, while the San Joaquin Kit Fox apparently inhabits portions of the Diablo Range.

The Del Puerto Canyon area, located in the Diablo Range in the western portion of Stanislaus County, plays host to a number of wildlife species. It is the nesting ground of the common falcon and there have been numerous Peregrine Falcon sightings. The Swainson's Hawk can also be found in this area. A very diverse reptile fauna, including various species of snakes and lizards, can be found in these western mountains.

Chaparral vegetation provides habitat for many small animal species such as wood rats, gophers, skunks, rabbits, foxes, and numerous snakes and lizards.

Common bird species found in the chaparral include the Wrentit, California Thrasher, and California Quail. Chaparral vegetation has been designated by the Department of Fish and Game as a critical primary habitat due to the presence of the Columbian Black Tailed Deer.

The State Department of Fish and Game, supported by Federal Aid in Wildlife Restoration, contracted to generate a list of bird species of special concern in California (See Table 3-5 on page 3-23). The list of bird species included those California breeding populations (in most cases), that are of special concern in that they may face extirpation. The danger may be immediate and the situation critical, or it may be rather remote, but still, a real possibility. The list is intended for use as a management tool. These species should be taken into special consideration when decisions are made concerning the future of any land parcel. The Stanislaus Audubon Society monitors the bird populations of the County on a regular basis, and has identified two critical and threatened areas: La Grange Dam Road and Del Puerto Canyon area.

La Grange Dam Road, located east of La Grange, near the County line, features a small strip of foothill-riparian habitat which serves as a habitat for the threatened Yellow-breasted Chat. This bird is on the blue list, a list of birds considered threatened nationwide. According to the Stanislaus Audubon Society, La Grange Dam Road is the only stronghold for this species in Stanislaus County.

Another threatened species of special concern found in the La Grange Dam Road area is the Cooper's Hawk. A nest was found in an oak tree in early Spring, 1986, and four young fledged from this nest in late June.

Del Puerto Canyon has long been renowned for harboring several bird species at the northernmost limit of their range in California, including the Costa's Hummingbird and the Cassin's Kingbird. A Costa's Hummingbird's nest was found in Del Puerto Canyon in the spring of 1986. The presence of these birds has long been a magnet for nature lovers. Every year, the Bay Area's Golden Gate Audubon Society conducts a spring field trip to Del Puerto Canyon to view birds seldom seen anywhere else in Northern California.

Several resident species that are found in Del Puerto Canyon include the Golden Eagle, Prairie Falcon, and Yellow-breasted Chat. The Greater Roadrunner is not listed as a species of special concern, but the study does note that "numbers have definitely declined in parts of Northern California."

Aside from the species of special concern that reside in the canyon, there are many other species there that are rarely seen anywhere else in Stanislaus County, including the Common Raven, Canyon Wren, Rufous-crowned Sparrow, Lawrence's Goldfinch, Sage Sparrow, and Grasshopper Sparrow. A list of birds that have been identified in Stanislaus County can be found in Table 3-6 on page 3-24.

The National Audubon society purchased the 780 acre Christmas Island in December, 1986, for a wildlife refuge. It will be the nucleus of a new national wildlife refuge, the first in Stanislaus County. The island was a part of the Mapes Ranch and is located on the floodplain adjacent to the San Joaquin River near its confluence with the Tuolumne River, west of Modesto. The island provides important wetlands for the migrating birds of the Pacific Flyway.

CALIFORNIA DEPARTMENT OF FISH AND GAME
BIRD SPECIES OF SPECIAL CONCERN LIST[1]

HIGHEST PRIORITY[2]

Common Loon
*White Pelican
*White-faced Ibis
*Fulvous Whistling-Duck
*Arizona Bell's Vireo
*Harris' Hawk
*Merlin
Sharp-tailed Grouse
Yellow Rail
Laughing Gull
Gilded Common Flicker
Willow Flycatcher
Vermilion Flycatcher

SECOND PRIORITY

Fork-tailed Storm-Petrel
*Double-crested Cormorant
*Marsh Hawk
*Osprey
*Snowy Plover
*Gull-billed Tern
Tufted Puffin
*Burrowing Owl
Spotted Owl
Long-eared Owl
*Short-eared Owl
Gila Woodpecker
Bank Swallow
*Purple Martin
Black-tailed Gnatcatcher
Gray Vireo
*Yellow Warbler
*Yellow-breasted Chat
Summer Tanager

THIRD PRIORITY

Black Storm-Petrel
Ashy Storm-Petrel
Least Bittern
Barrow's Goldeneye
Harlequin Duck
Goshawk
*Sharp-shinned Hawk
*Cooper's Hawk
Golden Eagel
*Prairie Falcon
Ruffed Grouse
*Sage Grouse
Sandhill Crane
California Gull
Elegant Tern
Black Skimmer
Marbled Murrelet
Rhinoceros Auklet
Black Swift
Wied's Crested Flycatcher
Black-capped Chickadee
Bendire's Thrasher
Le Conte's Thrasher
Crissal Thrasher
Virginia's Warbler
Hepatic Tanager
Cardinal
Gray-headed Junco

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[1]This list, prepared for the Department of Fish and Game by J.V. Remsen, Jr., under a Department contract with Western Field Ornithologists, is intended for use as a management tool and for information; species of special concern have no special legal status. Many of the species on the list are common migrants through the State, and for most species on the list, it is primarily the breeding population that is of special concern.

[2]Within each priority category, species are listed in taxonomic order, not in any order of priority.

* These species are also on the "Blue List" for 1978 (Arbib, 1977). The "Blue List", published annually in American Birds since 1971, includes species showing signs of non-cyclical poulation declines or range contructions in North America.

TABLE 3-6
BIRDS OF STANISLAUS COUNTY

GAVIIFORMES

ommon Loon

PODICIPEDIFORMES

Pied-billed Grebe
Horned Grebe
Eared Grebe
Western Grebe
Clark's Grebe

PEDECANIFORMES

American White Pelican
Brown Pelican
Double-crested Cormorant

CICONIIFORMES

American Bittern
Least Bittern
Great Blue Heron
Great Egret
Snowy Egret
Cattle Egret
Green-backed Heron
Black-crowned Night Heron
White-faced Ibis

ANSERIFORMES

Fulvous Whistling-Duck
Tundra Swan
Greater White-fronted Goose
Snow Goose
Ross' Goose
Emperor Goose
anada Goose
ood Duck
reen-winged Teal
Mallard
Northern Pintail
Blue-winged Teal
Cinnamon Teal
Northern Shoveler
Gadwall
American Wigeon
Canvasback
Redhead
Ring-necked Duck
Greater Scaup
Lesser Scaup
Common Goldeneye
Bufflehead
Hooded Merganser
Common Merganser
Ruddy Duck

FALCONIFORMES

Turkey Vulture
Osprey
Black-shouldered Kite
Bald Eagle
Northern Harrier
Sharp-shinned Hawk
Cooper's Hawk
Red-shouldered Hawk
Swainson's Hawk
Red-tailed Hawk
Ferruginous Hawk
Rough-legged Hawk
Golden Eagle
nerican Kestrel
erlin
Peregrine Falcon
Prairie Falcon

GALLIFORMES

Ring-necked Pheasant
Wild Turkey
California Quail

GRUIFORMES

Virginai Rail
Sora
Common Moorhen
American Coot
Sandhill Crane

CHARADRIIFORMES

Black-bellied Plover
Lesser Golden-Plover
Snowy Plover
Semipalmated Plover
Killdeer
Black-necked Stlit
American Avocet
Greater Yellowlegs
Lesser Yellowlegs
Willet
Spotted Sandpiper
Whimbrel
Long-billed Curlew
Marbled Godwit
Ruddy Turnstone
Sanderling
Western Sandpiper
Least Sandpiper
Baird's Sandpiper
Pectorial Sandpiper
Dunlin
Stilt Sandpiper
Short-billed Dowitcher
Long-billed Dowitcher
Common Snipe
Wilson's Phalarope
Red-necked Phalarope
Bonaparte's Gull
New Gull
Ring-billed Gull
California Gull
Herring Gull
Caspian Tern
Forster's Tern
Black Tern

COLUMBIFORMES

Rock Dove
Band-tailed Pigeon
Mourning Dove

CUCULIFORMES

Yellow-billed Cuckoo
Greater Roadrunner

STRIGIFORMES

Common Barn-Owl
Western Screech Owl
Great Horned Owl
Burrowing Owl
Short-eared Owl
Northern Saw-whet Owl

CAPRIMULGIFORMES

Lesser Nighthawk
Common Poorwill

APODIFORMES

Vaux's Swift
White-throated Swift
Black-chinned Hummingbird
Anna's Hummingbird
Costa's Hummingbird
Rufous Hummingbird
Allen's Hummingbird

CORACIIFORMES

Belted Kingfisher

PICIFORMES

Lewis Woodpecker
Acorn Woodpecker
Red-breasted Sapsucker
Nuttail's Woodpecker
Downy Woodpecker
Hairy Woodpecker
Northern Flicker

PASSERIFORMES

Olive-sided Flcatcher
Western Wood-Peewee
Willow Flycatcher
Western Flycatcher
Black Phoebe
Says' Phoebe
Ash-throated Flycatcher
Cassin's Kingbird
Western Kingbird
Horned Lark
Purple Martin
Tree Swallow
Violet-green Swallow
Northern Rough-winged Swallow
Bank Swallow
Cliff Swallow
Barn Swallow
Steller's Jay
Scrub Jay
Yellow-billed Magpie
American Crow
Common Raven
Plain Titmouse
Bushtit
Red-breasted Nuthatch
White-breasted Nuthatch
Brown Creeper
Rock Wren
Canyon Wren
Bewick's Wren
House Wren
Winter Wren
Marsh Wren
American Dipper
Golden-Crowned Kinglet
Ruby Crowned Kinglet
Blue-gray Gnatcatcher
Western Bluebird
Mountain Bluebird
Townsend's Solitaire
Swainson's Thrush
Hermit Thrush
American Robin
Varied Thrush
Wrentit
Northern Mockingbird
Sage Thrasher
Brown Thrasher
California Thrasher
Water Pipit
Cedar Waxwing
Phalnopepla
Loggerhead Shrike
European Starling
Solitary Vireo
Hutton's Vireo
Warpling Vireo
Warpling Vireo
Orange-crowned Warbler
Nashville Warbler
Yellow Warbler
Chestnut-sided Warbler
Magnolia Warbler
Yellow-rumped Warbler
Black-throated
Gray Warbler
Townsend's Warbler
Hermit Warbler
MacGillivray's Warbler
Common Yellowthroat
Wilson's Warbler
Yellow-breasted Chat
Western Tanager
Black-headed Grosbeeak
Blue Grosbeak
Luzuli Bunting
Green-tailed Towhee
Rufous-sided Towhee
Brown Towhee
Rufous-crowned Sparrow
Chipping Sparrow
Vesper Sparrow
Lark Sparrow
Sage Sparrow
Savannah Sparrow
Grasshopper Sparrow
Fox Sparrow
Song Sparrow
Lincoln's Sparrow
Swamp Sparrow
White-throated Sparrow
Golden-crowned Sparrow
White-crowned Sparrow
Dark-eyed Junco
Red-winged Blackbird
Tricolored Blackbird
Western Meadowlark
Yellow-headed Blackbird
Brewer's Blackbird
Brown-headed Cowbird
Hooded Oriole
Northern Oriole
Purple Finch
House Finch
Pine Siskin
Lesser Goldfinch
Lawrence's Goldfinch
American Goldfinch
House Sparrow

Christmas Island is the winter home for the Aleutian Canadian Goose, an endangered species and the Sandhill Crane, a threatened species. In the spring, the island's valley oaks harbor a nesting rookery of an estimated 250 pairs of Great Blue Herons and Great Egrets. Double-crested cormorants and the rare Swainson's hawk have also been spotted on the island.

2. Agricultural Lands

The agricultural areas on the County's valley floor support a diversity and abundance of wildlife. They provide an intermittent habitat for a number of wildlife species. There are four basic agricultural crop types with each supporting various wildlife species.

Irrigated Pasture provides habitat for geese, Sandhill Cranes, Tundra Swans, and pheasants. Many smaller birds and mammals, particularly rodents, are also found.

Vineyards provide habitat for quail, morning doves, opossums, rabbits, rodents, passerine birds, and pheasants. Vineyards are particularly important when they are adjacent to other habitat types. For example, when a vineyard is located next to a riparian area, wildlife within the riparian area will move into the vineyards for food and cover.

Row Crops provide habitat for pheasants, rabbits, rodents, doves and passerine birds. Row crops are particularly important during the winter months when species will move into them from other habitat types.

Orchards provide habitat for nesting doves, pheasants, passerine birds, quail, rabbits and rodents. Due to their longevity, orchards are becoming increasingly important to wildlife preservation.

3. Riparian Areas

Due to the extensive land clearance which has occurred in the past for agricultural and urban land uses, riparian vegetation is essentially restricted to the banks of the County's creeks and rivers. Riparian vegetation is very dense, usually consisting of Willows and Fremont Cottonwoods, Valley Oaks, California Sycamore, Box Elder, and Oregon Ash. Along Orestimba Creek at Interstate 5, a unique stand of California Sycamores can be found. This is the only place on the valley side of the Coast Range where the California Sycamore comes down to the valley floor. Thick undergrowth is composed primarily of shrubs such as Buttonbush, honeysuckle, elderberry, and gooseberry. The smaller plants typically present include poison oak, nettle, mule fat, wild grape and long stemmed shade tolerant grasses.

The riparian vegetation shelters many wildlife species. An important factor contributing to the heavy use of riparian areas by wildlife is its frequent proximity to other habitats such as agricultural lands. The combination of the two habitats provide food and shelter for wildlife species. For this reason, riparian habitat has been designated as a critical primary habitat by the State Department of Fish and Game. Thus, in terms of quality, it is the most important habitat in the County.

Location of wildlife within the riparian area is varied, with the greatest number of species found near the water areas. This, of course, includes the over 40 species of fish which inhabit Stanislaus County waterways. Fish tend to use the shade and tree root tangles from heavy streamside vegetation as feeding and shelter areas. Mollusks and crustaceans are also found.

Populations of largemouth and smallmouth bass, striped bass, channel and white catfish, American chad, black croppie, bluegill, green and white sturgeon, and rainbow and brown trout can be found. Rainbow and brown trout can be found around the Knights Ferry area in the deep, cool pools. Below Knights Ferry, where the river slows and the water is warmer, various types of bass, shad, catfish, bluegill and croppie can be found. To help protect the declining king (Chinook) salmon population which migrate up the Tuolumne and Stanislaus River to spawn, the rivers are closed to fishing east of the Highway 99 bridges through the County from October 1 to December 31 annually.

Among the birds which are known to inhabit the riparian area are large wading birds such as herons and egrets, raptores (such as hawks), owls, and eagles, game birds including quail, doves, and pheasants, waterfowl migrating along the Pacific Flyway such as ducks, geese and swans, and numerous song birds. The bald eagle, an endangered species, is found at numerous sites in Eastern Stanislaus County.

Mammals, such as cottontails, rabbits, raccoons, skunks, beaver, foxes, opossum, squirrels, and coyotes are all found in riparian areas. Deer are occasionally seen in small numbers along the rivers in the eastern portion of the County.

Various reptile, amphibian and insect species inhabit the riparian areas. The giant garter snake which is classified as a rare species, is believed to be present within some fresh water areas within the County.

The exact amount of riparian habitat which now exists in the County is unknown. Estimates from several years ago varied from seven to eight thousand acres. The amount of riparian habitat has diminished due to conversion to other land uses. One factor in the conversion process has been the implementation of various flood control projects, including the United States Army Corp. of Engineers channel clearing project. Today, an estimated four to five thousand acres of riparian habitat exist in Stanislaus County.

4. Large Water Areas

The County's reservoirs and marshes provide substantial waterfowl and wildlife habitat. The lakes and reservoirs are relatively deep, open areas with narrow borders of vegetation. Some of the marshes are seasonal in nature.

Wildlife associated with lakes includes numerous bird species, a wide variety of fish and aquatic life, and various mammals; the number and type depends upon the amount of permanent vegetation which exists. Wetlands also support many bird and mammal species, depending on the size and permanence of the water. These areas are considered critical secondary type habitats by the State Department of Fish and Game.

A fourth significant wetland area is the sewer pond. These ponds attract numerous species of birds. So many, in fact, that the Stanislaus Audubon Society monitors these sites on a monthly basis. Locations of endangered or threatened wildlife species can be found on the map on page 3-27.

5. Rare and Endangered Plants

One of California's greatest natural resources is its rare plants. The State's mountain ranges and deserts and its unusual summer-dry climate, set the stage for the development of a complex and fascinating flora. Almost seven thousand types of plants are native here, more than we find in the entire northeastern United States and adjacent Canada, an area ten times larger than California.

One of the most notable features of the California flora is that about one-third of its native species are endemic, plants that are restricted to a particular locality or habitat within the State. The primary factor as to why California has so many rare and endemic plants may well be our climate, a regime of dry summers and cool, wet winters. Only in the Mediterranean Basin, Chile, and parts of Australia and South Africa do we find similar climates. Each is famous for its array of rare plants. A second factor is topography. Within the boundaries of this State are the extremes of low, subtropical desert to habitats above timberlines. A third factor is the richness of geological formations, and the resulting diversity of soil types.

In l977, as a result of the endeavors of many farsighted people, the California Native Plant Protection Act became law. The act directed the California Department of Fish and Game to carry out the legislature's intent to "preserve, protect, and enhance plants of this State". This act empowered the Fish and Game Commission to designate native plants as endangered or rare, or to require permits for collecting, transporting, or selling such plants.

The definitions of "endangered" and "rare" are found within the legislation itself (Section 1900, Chapter 10 of the Fish and Game Code):

> A native plant "is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens".
>
> A native plant "is endangered when its prospects of survival and reproduction are in immediate jeopardy from one or more causes".

Criteria have been developed to determine if a species, subspecies, or variety meets the definitions of rare or endangered. In order to qualify as rare, the California distribution of a native plant must be:

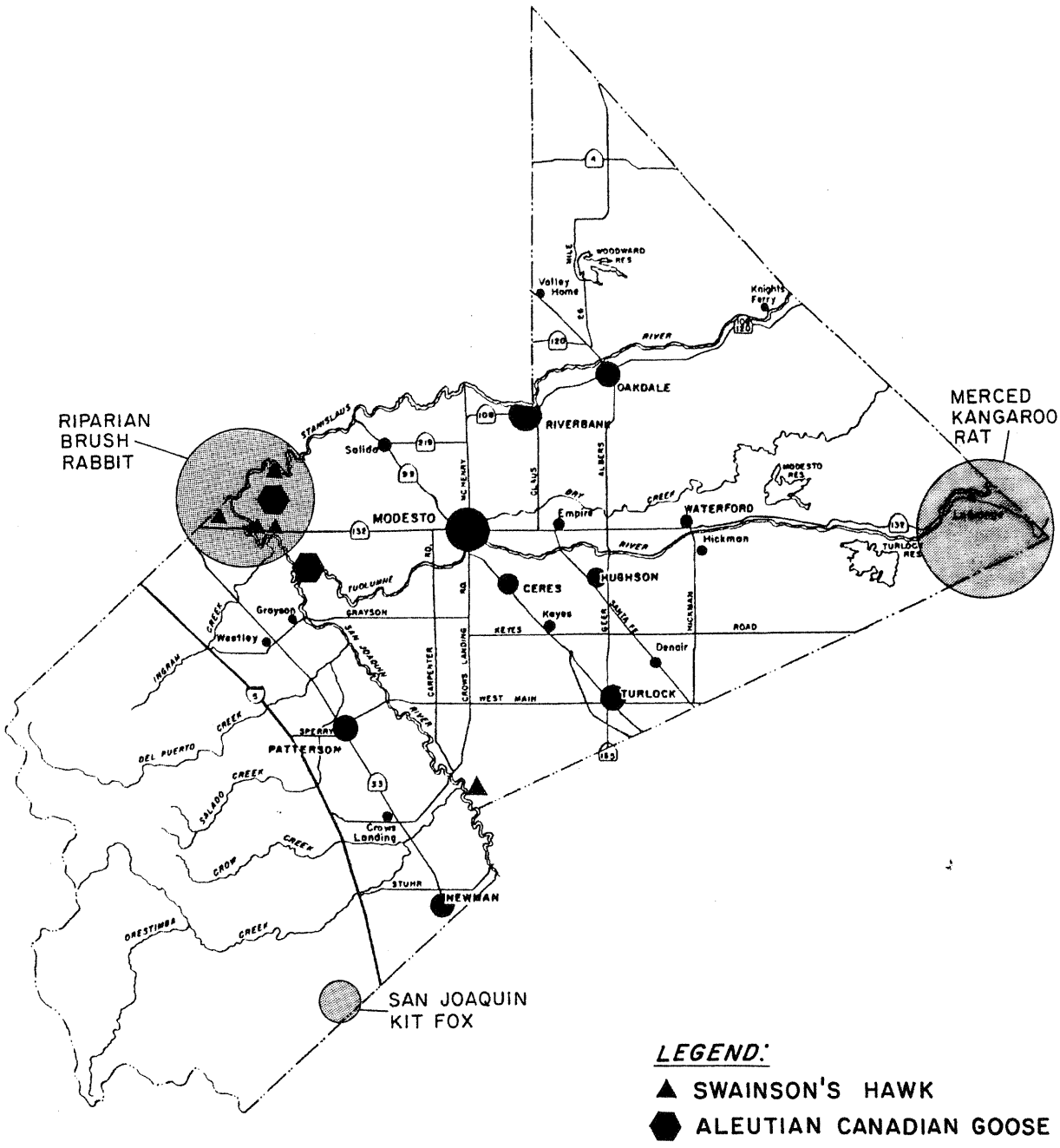
1. Limited to unusual substrate or sharply defined habitat not representative of a region; or

2. Generally limited or infrequent in number, such that it complies with at least three of the following conditions:
   a. fewer than 20 definable populations
   b. maximum inter-population distance of less than 100 km (68 mi)
   c. most populations of fewer than 10,000 individuals
   d. most populations less than 1 hectare (2.47 acres); or

3. Limited in total area of occurrence to less than 5 hectares (about 12.4 acres);or

4. Limited to one or two populations.

RARE AND ENDANGERED ANIMALS



In order to qualify as endangered, a native plant need satisfy only one of the following classes of jeopardy:

1. Most populations undergoing imminent or active destruction of range or fundamental habitat; or

2. Native plant reproductive strategy in danger of failure due to limited plant numbers or occurrences or loss of support organisms; or

3. Low potential for effective coordination of land management due to fragmentation of ownership and land use regulatory-management authorities or occurrences on sites where adopted land use management plans and policies preclude its continued survival; or

4. Subject to heavy collection pressure due to high horticultural, economic, aesthetic, commercial, or research value.

Using these criteria, the Endangered Plant Program carries out its most visible function -- proposing plants to be listed by the California Fish and Game Commission. Proposals are developed based upon analysis of data by the Natural Diversity Data Base, input from the California Native Plant Society, and the opinions of other knowledgeable individuals and organizations. A proposal includes the species distribution, habitat requirements, population trends, and threats to its existence, as well as an analysis of the economic impact of listing.

The legal protection afforded listed plants under the Native Plant Protection Act involves provisions that prohibit the taking of plants from the wild and a salvage requirement for landowners. Once they have been notified of the presence of a listed species on their property, landowners are required to tell the Department of Fish and Game at least ten days in advance of any land use change. This allows for the salvaging of plants that would otherwise be destroyed.

The California Environmental Quality Act (CEQA) enacted in 1970, was designed to "ensure that the long-term protection of the environment shall be the guiding criterion in public decisions". CEQA also declares that "the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects".

The act is administratively implemented by guidelines prepared by the Office of Planning and Research. Referred to as "CEQA Guidelines", they are published in the California Administrative Code (Title 14, Sections 1500 et seq.).

In 1983, definitions for “rare” and “endangered” plants were added that parallel those used in the Native Plant Protection Act. Also included in the amendments to the CEQA Guidelines is a clarification of how to treat plants that have not yet been State listed. "A plant or animal not included in any such listing shall nevertheless be considered to be rare or endangered if the plant or animal can be shown to meet the criteria...". This means that if a plant is rare or endangered by virtue of biology, distribution, or endangerment, then it must be addressed under CEQA Guidelines as if it were State listed.

Special plants are species or subspecies that may fall into one or more of the following categories:

* Officially listed by California or the Federal Government as Threatened, Endangered, or Rare;

* Considered a Sensitive Species in California by the U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service;

* Classifications that are biologically rare, very restricted in distribution, or thought to be declining throughout their range but not currently threatened with extirpation;

* Population(s) in California peripheral to the major portion of a classification's range;

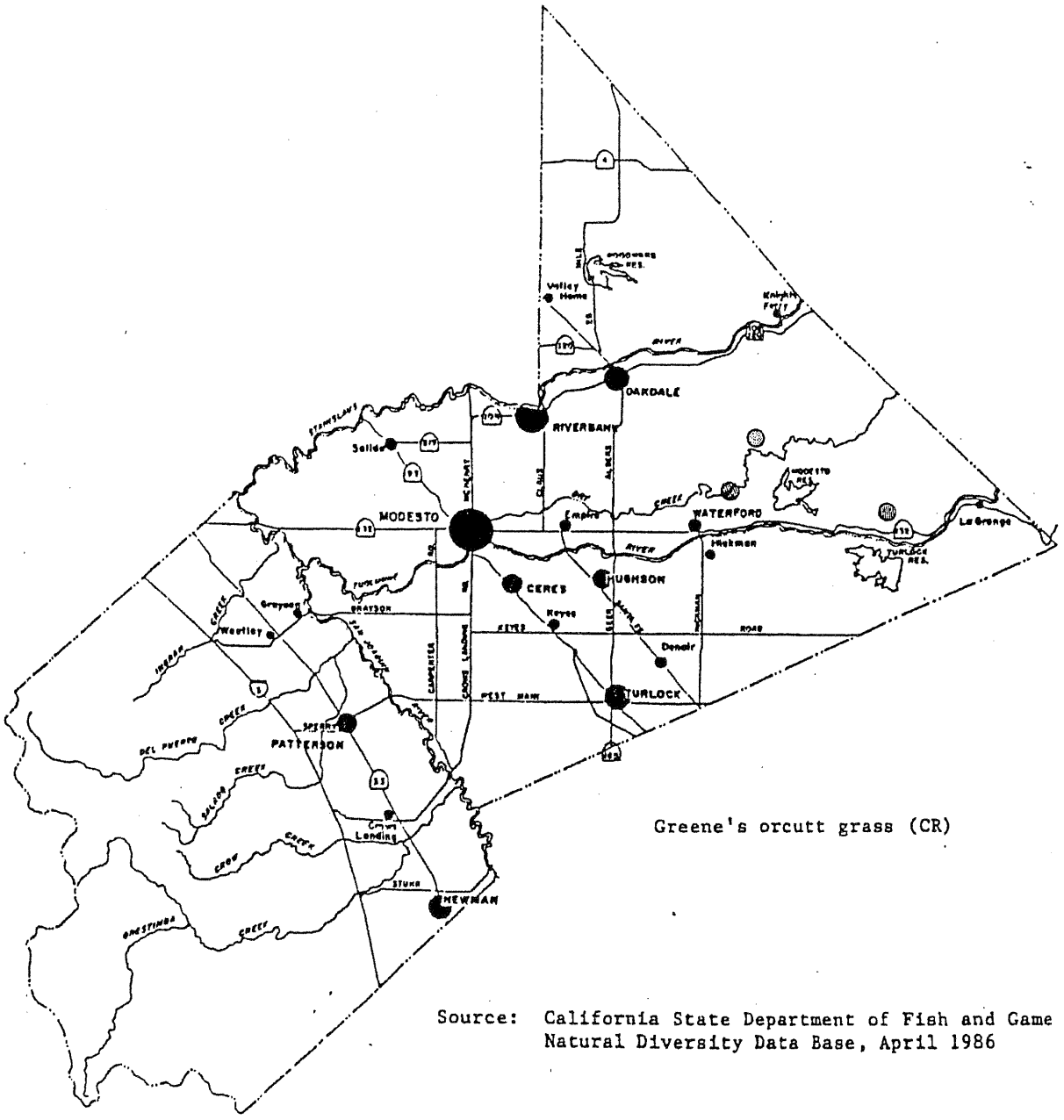
* Classifications closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

The "special plants" identified and inventoried for Stanislaus County by the State of California Department of Fish and Game Natural Data Base study (April 26, 1986), are listed as follows:

	Common Name		Scientific Name
1	Hoover's calycadenia		(Calycadenia hooveri)
1	Sharsmith's harebell		(Campanula sharsmithiae)
1	Hoover's spurge		(Chamaesyce hooveri)
1	Mt. Hamilton thistle		(Cirsium campylon)
1	beaked clarkia		(Clarkia rostrata)
1	Mt. Hamilton coreopsis		(Coreopsis hamiltonii)
1	spiny-sepaled coyote thistle		(Eryngium spinosepalum)
1	diamond-petaled California poppy		(Eschscholzia rhombipetala)
1	talus fritillary		(Fritillaria falcata)
1	Merced monardella		(Monardella leucocephala)
2	Delta coyote thistle	(CE)	(Eryngium racemosum)
2	Colusa grass	(CE)	(Neostapfia colusana)
2	hairy orcuttia grass	(CE)	(Orcuttia pilosa)
2	fleshy owl's clover	(CE)	(Orthocarpus campestris)
2	Hartweg's pseudobahia	(CE)	(Pseudobahia bahiaefolia)
3	Greene's tuctoria grass	(CR)	(Tuctoria greenei)
4	Dwarf downingia		(Downingia humilis)

1 A candidate for federal listing as Threatened or Endangered
2 Officially listed by California as Endangered (CE)
3 Officially listed by California as Rare (CR)
4 Plants of limited distribution (See maps beginning on page 3-31)

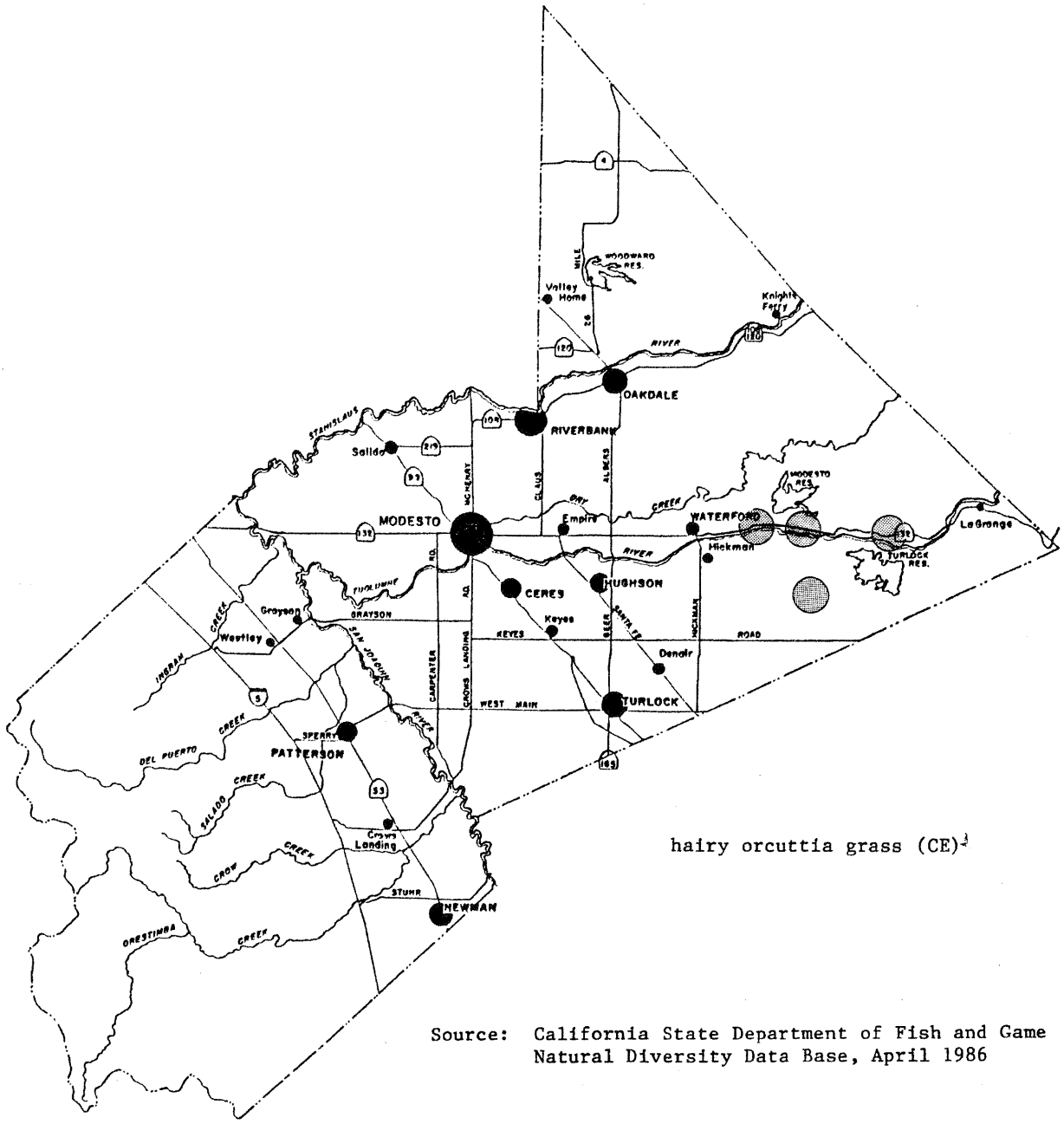
RARE AND ENDANGERED PLANTS



Greene's orcutt grass (CR)

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

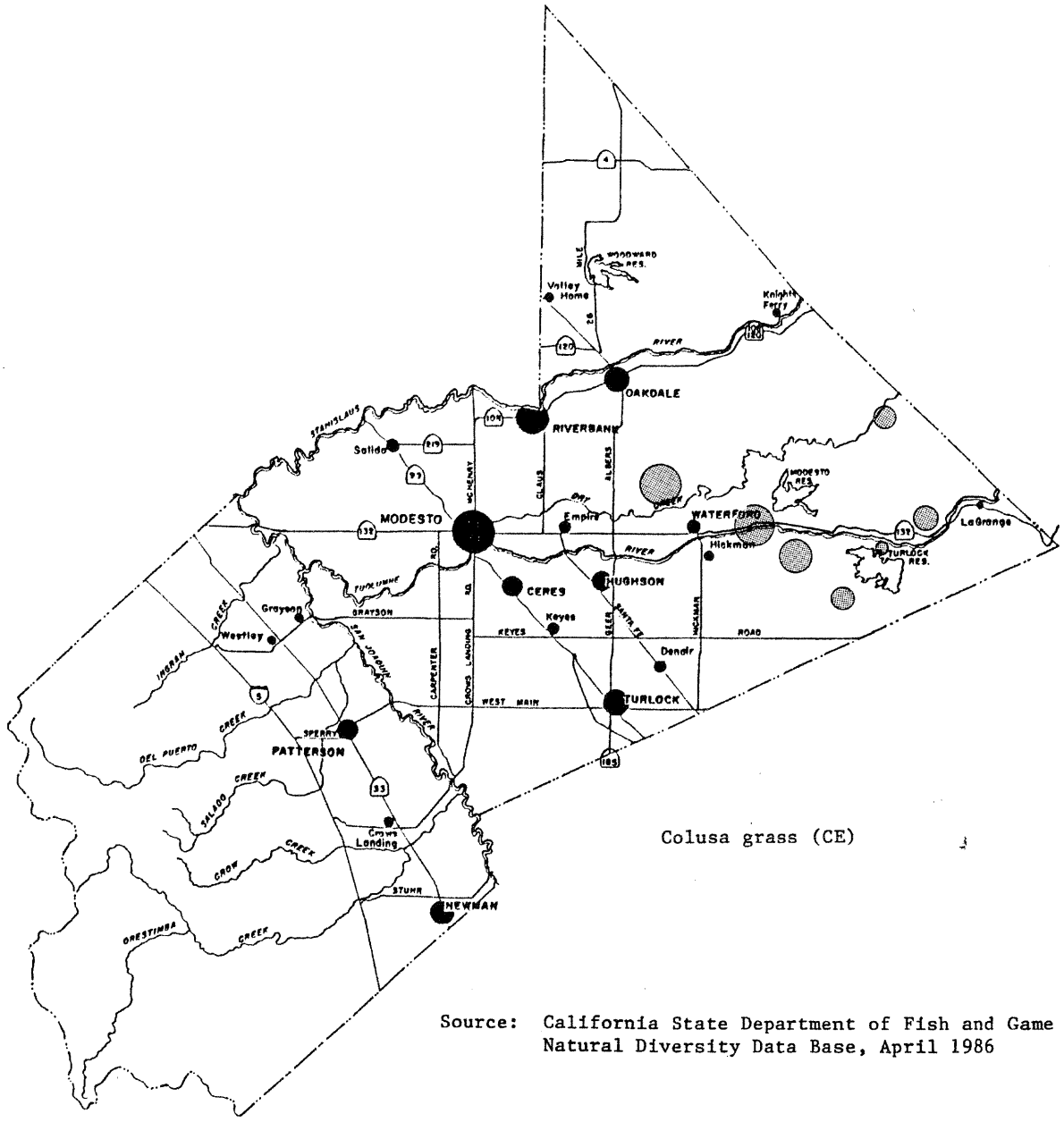
RARE AND ENDANGERED PLANTS



hairy orcuttia grass (CE)[1]

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

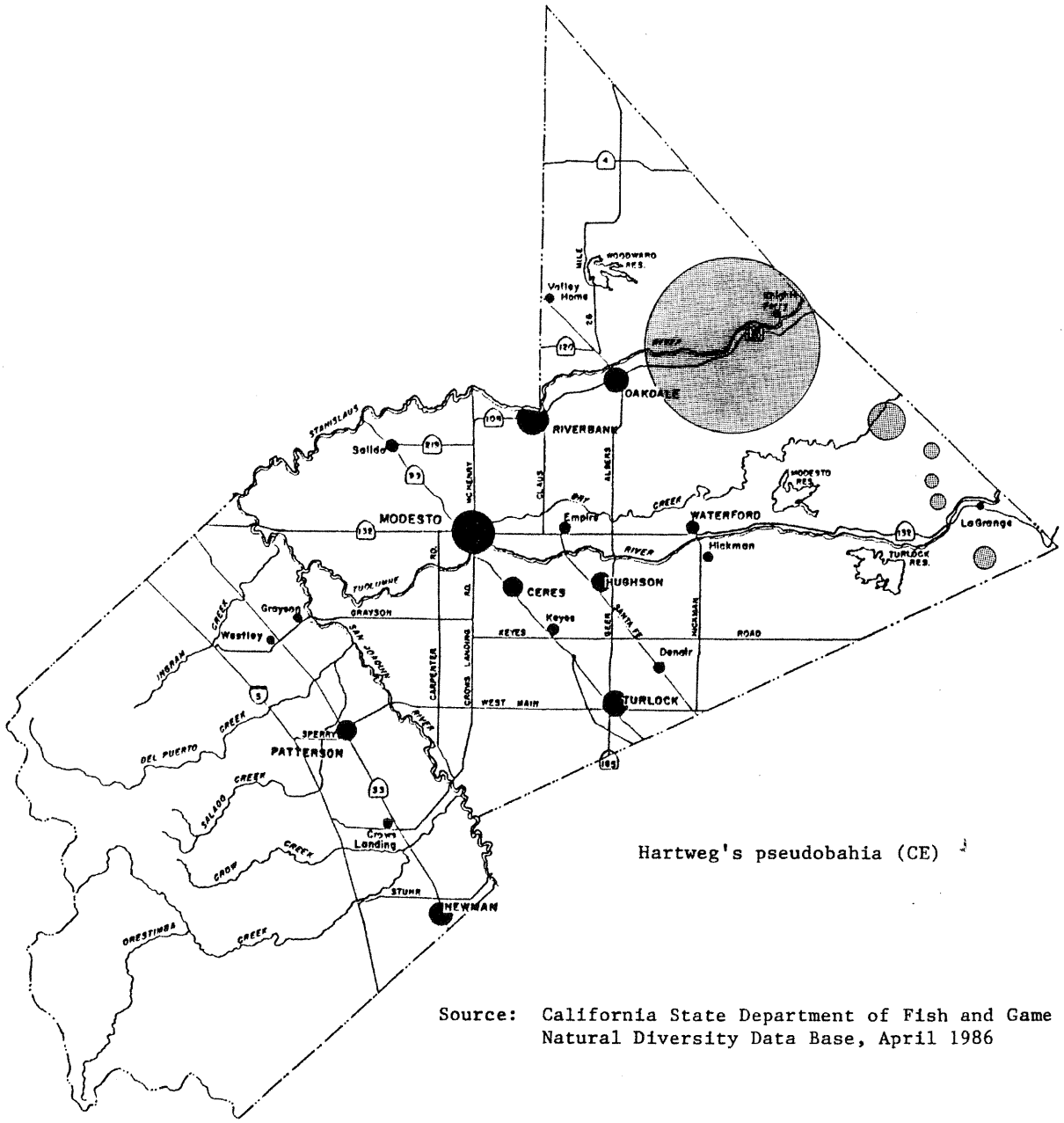
RARE AND ENDANGERED PLANTS



Colusa grass (CE)

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

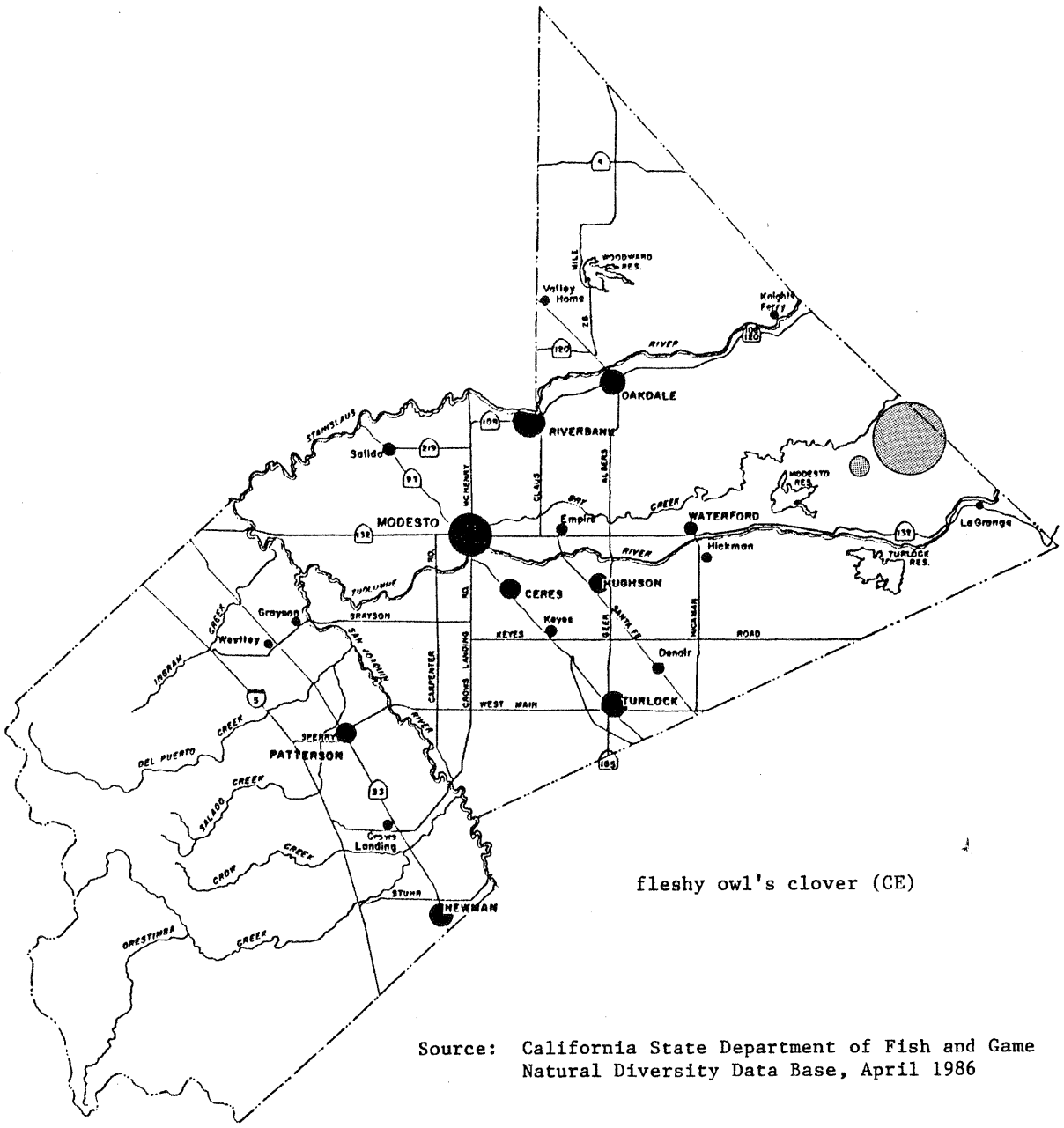
RARE AND ENDANGERED PLANTS



Hartweg's pseudobahia (CE)

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

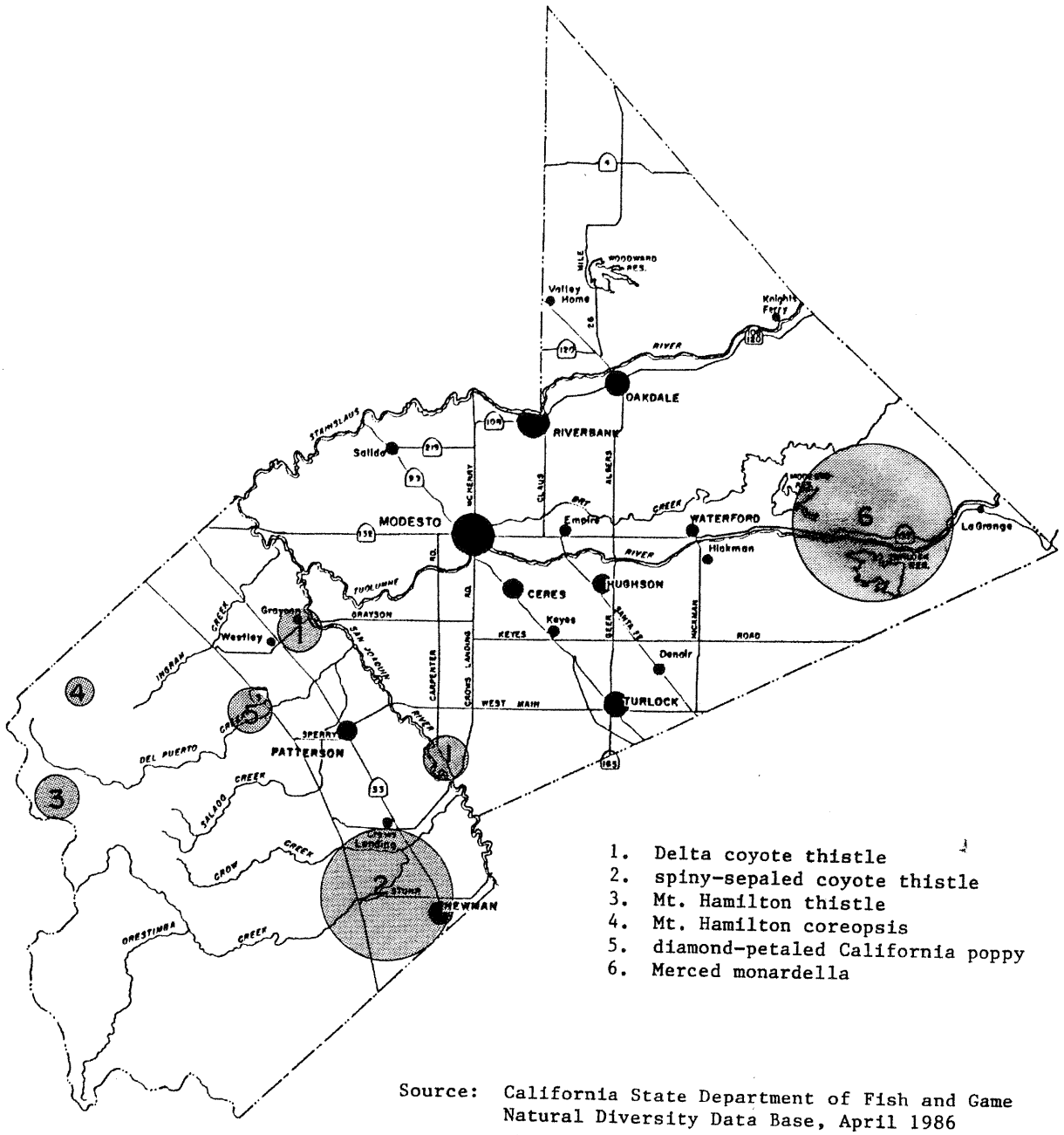
RARE AND ENDANGERED PLANTS



fleshy owl's clover (CE)

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

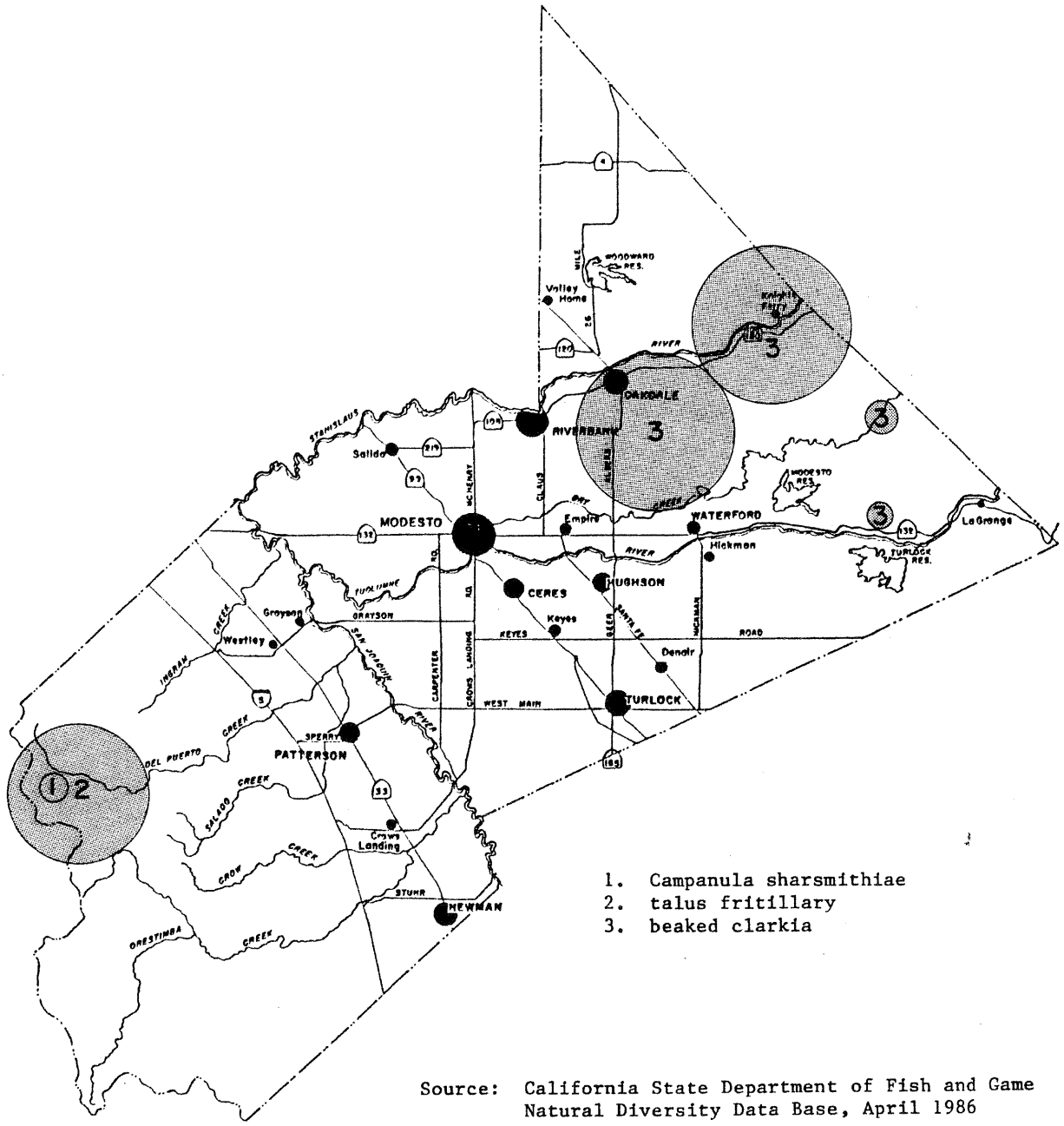
RARE AND ENDANGERED PLANTS



1. Delta coyote thistle
2. spiny-sepaled coyote thistle
3. Mt. Hamilton thistle
4. Mt. Hamilton coreopsis
5. diamond-petaled California poppy
6. Merced monardella

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

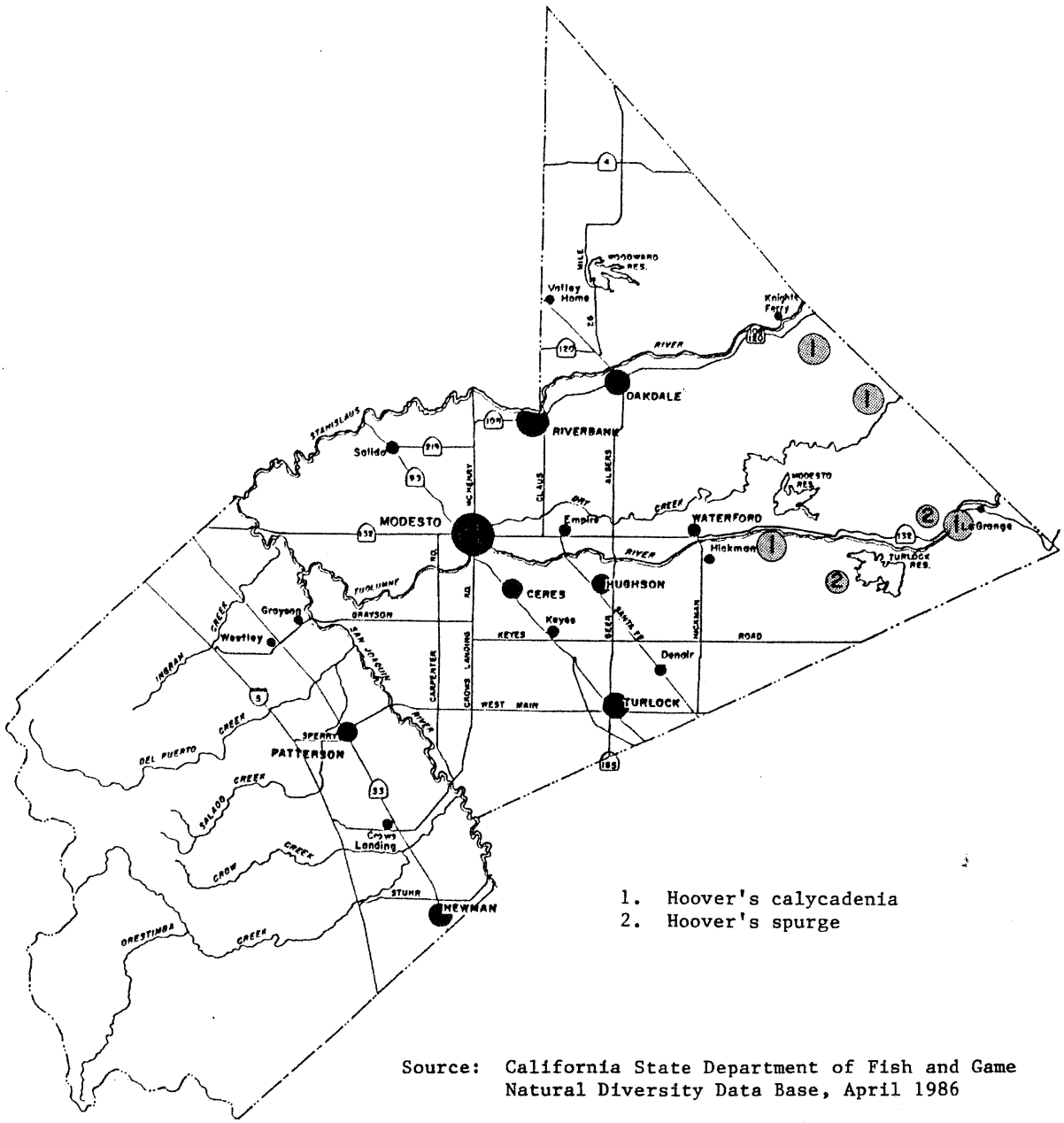
RARE AND ENDANGERED PLANTS



1. Campanula sharsmithiae
2. talus fritillary
3. beaked clarkia

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

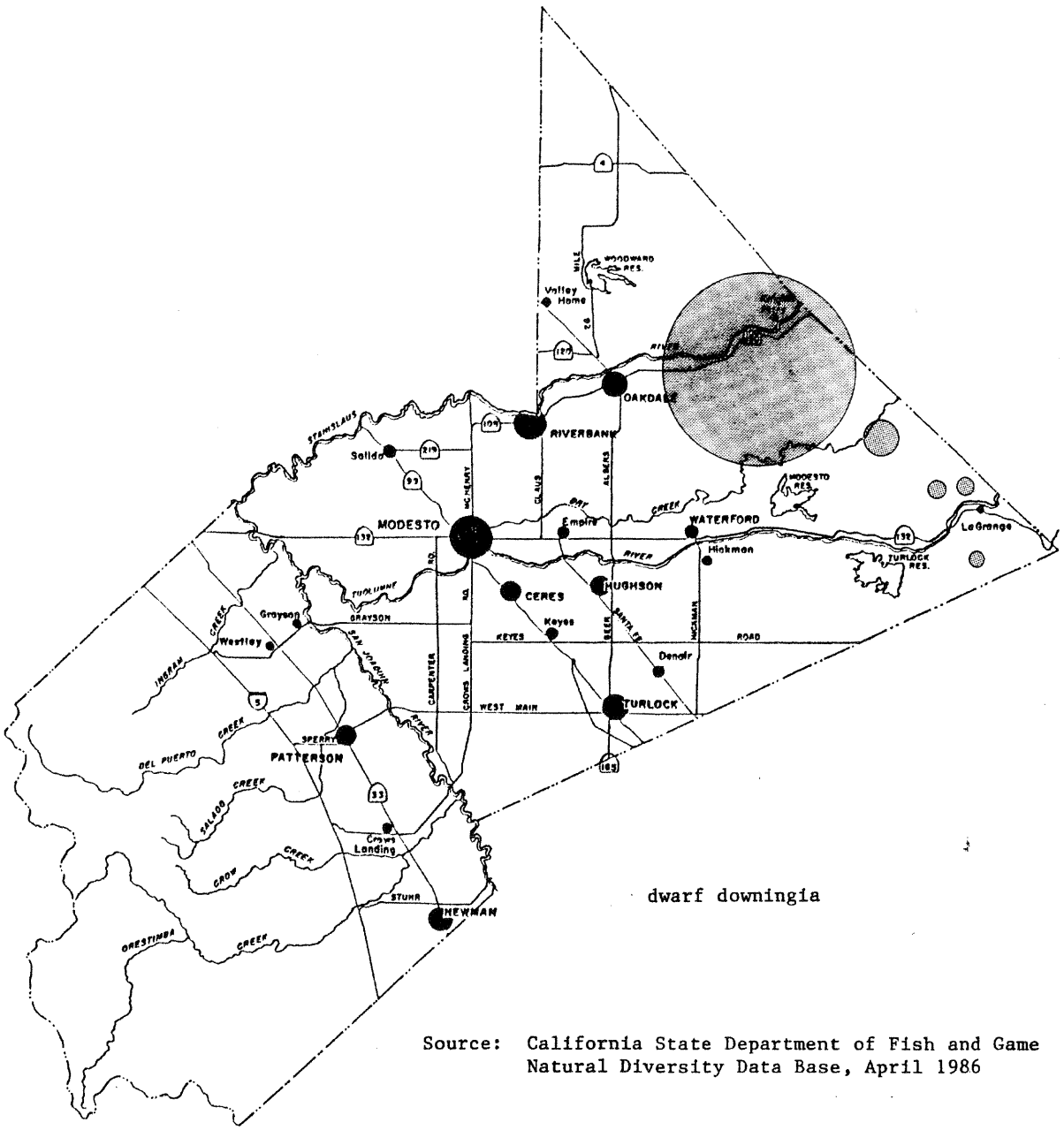
RARE AND ENDANGERED PLANTS



1. Hoover's calycadenia
2. Hoover's spurge

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS



dwarf downingia

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

Natural Communities

There are several natural communities located within Stanislaus County. (See map on page 3-43). Considered one of the most important is the vernal pool. These intermittent bodies of water form when rain falls and cannot seep quickly into the soil. The pools can last for days, weeks, or even months, depending on the soil under the pool and the local weather. Normally such intermittent pools do not lie along a creek or watercourse, but instead, they exist in open, relatively flat areas where soil composition and land topography produce depressions or shallow areas where sporadic rainfall can collect.

Because of California's Mediterranean climate patterns, vernal pools are normally filled only once, during the winter rains, which occur primarily from November through March. In central California, the cool, wet winter is followed by a balmy spring, a hot and dry summer, and cooler, but parched fall.

The vernal pool flora must not be considered static, to be viewed at only one time. Instead, the pool flora (and fauna as well) is dynamic - it changes in many ways from onset to final drying. To understand why this occurs, one must only contemplate the physical properties of the pool. With winter rainfall, the dried and cracked pool of the past summer is wetted and filled. Sometimes it takes numerous rains to wet the parched soil enough, but eventually, the sand, silt and clay particles loosen from their clods and melt together - creating an impermeable bottom. After the season's rains, the pool is full, its depth dependent upon the supply of precipitation afforded it. The new pool can be measured - circumference, area, depth temperature, dissolved gasses, turbidity, etc. With time, as the pool's water evaporates, all of these physical aspects change - and with them, the biota, or living component changes correspondingly.

Many plants germinate and bloom on the shallow edge or moist margin of the early pool. As the water evaporates, the circumference of the pool shrinks, thus providing a new germination band just inside the first. Continuous evaporation produces a smaller pool but exposes more germination bands for more wildflowers. Life is getting better for the plants.

The slow drying of the vernal pool may produce concentric rings of showy wildflowers, each species showing preference for its specific microhabitat along the drying gradient. Two, three or more species may be blooming in concentric garlands as the niches of the pool are made available.

More than 100 species of California wildflowers have been identified in vernal pools, a great number of which are considered endemic, or narrowly restricted to this specific habitat. Common to California vernal pools are Meadowfoam (Limnanthes), Checker (Sidalcea), Popcorn (Allocarya), Goldfields (Lasthenia), Blennosoperma, Downingia and Navarretia, but there are also some extremely rare plant species.

In eastern Stanislaus County, California's largest remaining vernal pool complex exists east of Hickman, near Turlock Lake. These pools range from 50 to 300 acres in surface area and are unique to the State. Because of their size, they have also been called vernal playas. Early botanists, noting their enormous size, jokingly referred to them as "elephant wallows". These playas are not typical, and do not even exhibit the typical wildflower assemblage. Instead, because of their very different physical nature, they support teeming numbers of invertebrates (crustaceans, insects, etc.), and are home for intriguing vertebrates like Tiger Salamanders, Spadefoot Toads, Treefrogs, Western Toads, and other amphibians. During winter and spring, tens of thousands of these animals return to these giant pools to reproduce.

In addition to their uniqueness, their biological significance, and their swarming populations of salamanders, frogs, and toads, these giant pools shelter very rare California plants. Colusa grass (Neostapfia), Orcutt's grass (Orcuttia), and Hoover's spurge, (Euphorbia), have their genetic strongholds in these pools. There is no other location in California that these endangered plants exist in similar numbers. Unisolated chemical compounds within Colusa grass alone make it worthy of protection. (See map on page 3-43).

There are four other important natural communities identified in Stanislaus County. These include a valley freshwater marsh located west of Laird Park in the Grayson area in which the State endangered Delta coyote thistle is found, a valley oak bottomland savanna area north of Grayson along the San Joaquin River, a Great Valley cottonwood riparian forest located at the confluence of the San Joaquin and Stanislaus Rivers, and a unique sycamore woodland area located along Orestimba Creek at Interstate 5. This is the only location on the valley side of the Coast Ranges where the sycamores enter the valley floor. (See map on page 3-43)

One of the county's true natural areas that is worthy of separate discussion is the Del Puerto Canyon area.

Del Puerto Canyon Road is the only public road crossing the Diablo Range within Stanislaus County borders. A drive on this road is nearly always a scenic pleasure due to the canyon's primitive character, wildflower displays, bird species (Golden Eagles, Prairie Falcons, etc.), and the pastoral beauty of Del Puerto Creek. The canyon is heavily utilized by picnickers and visitors to Frank Raines Park, Minniear Wild area, and the Deer Park rough terrain area.

Visitation within this canyon has steadily increased in the past twenty years. In the mid-1960's, very few properties were fenced and visitors were welcome to picnic alongside of the public road. With the increase of use (especially after opening the rough terrain area), considerably more vandalism and damage to private property was done. Consequently, fences were constructed to keep people out and to reduce vandalism. Today, there are no places where the public is allowed or invited other than those owned by the County.

Del Puerto Canyon is both historically and presently significant. Early expeditions (Brewer/California Geological Survey, 1860-64), described its wildness, the presence of grizzly bears, pronghorns, mountain lions, Great Blue herons, and many other wild animals. Today, Del Puerto Canyon Road crosses numerous geologically significant formations, including exposures of the Great Valley Sequence (Cretaceous and Jurassic), uplifted at the canyon's eastern end. The road continues east to west into the Franciscan Formations of the inner Coast Ranges and through serpentine outcrops. Within the Diablo Range, there are numerous serpentine outcrops. Some of these are extensive in western Stanislaus County.

Del Puerto Canyon Road provides the only east-west public access of the Diablo Range within the Stanislaus County borders. This road encounters serpentine and serpentized rock in the Frank Raines Park region and travels through extensive serpentine outcrops west of the park.

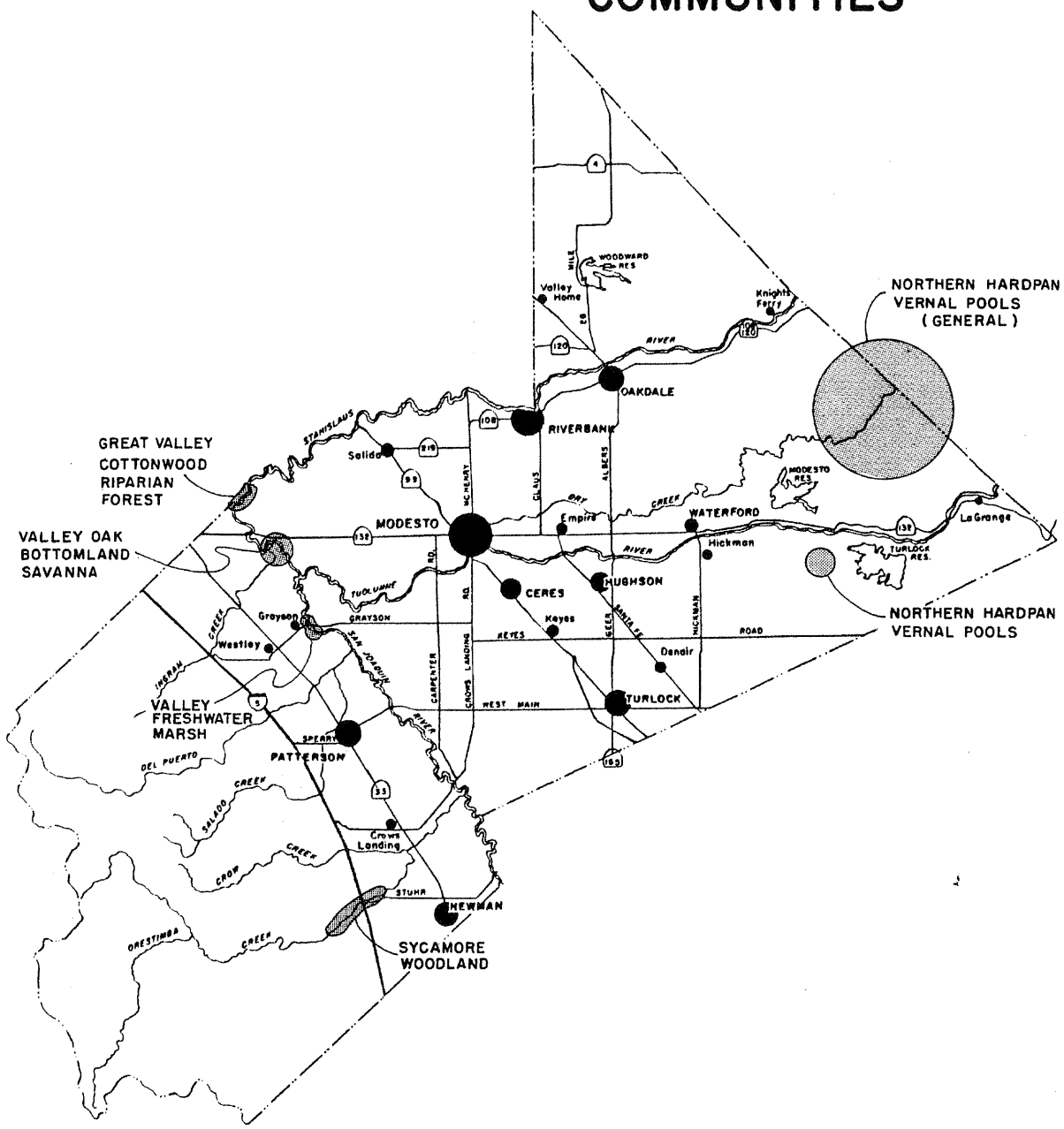
Due to the plant toxicity of serpentine soils, endemic, rare or highly restricted plant species often occur. Numerous such species exist in this Diablo Range, Stanislaus County area. They include: Sharsmith's harebell (Campanula sharsmithiae), Mt. Hamilton thistle (Cirsium campylon), Spiny-sepaled coyote thistle (Eryngium spinosepalum), diamond-petaled California poppy (Eschscholzia rhombi-petala), and talus fritillary (Fritillaria falcata).

Del Puerto Canyon vegetation associations include grasslands, chaparral, juniper woodlands, riparian woodlands, foothill woodlands (pine-oak), and oak woodlands (oak only). Wildflowers are common and showy during winter and spring months. Numerous school groups utilize the canyon during the spring for wildflower and wildlife field trips.

Del Puerto Canyon wildlife includes mammals such as deer, coyote, fox, bobcat, mountain lion, skunk and raccoon. Many other species of mammals dwell here as well. The canyon is noted for its diverse bird populations.

In addition to common bird species, special birds like Golden Eagles and Prairie Falcons, are commonly seen. Peregrine Falcons have often been reported within the canyon. The canyon maintains a diverse reptile population as well.

NATURAL COMMUNITIES



AESTHETIC, CULTURAL & RECREATIONAL RESOURCES

Parks and Trails

As population and leisure time increases, the demand for outdoor recreational facilities increases. Stanislaus County has traditionally had a fine ongoing program to provide for these demands. It should be noted that parks can provide protection of valuable resources and habitats by incorporating a multi-use concept in these areas. An example for such multi-use would be the development of a river area in a manner providing not only protection for valuable riparian habitat and establishment of educational nature trails, but also provision for more traditional recreational usage.

The County presently maintains several regional parks with a total acreage in excess of 15,500 acres. These parks provide a wide variety of recreational facilities and opportunities such as picnic areas, sports fields, campsites, equestrian facilities, swimming, waterskiing, fishing, boating and barbecue pits. Other facilities such as seasonal off-road vehicle areas in La Grange and Del Puerto Canyon, nature trails and fishing accesses are maintained by the County in response to more specific recreational needs. (See map on page 3-45)

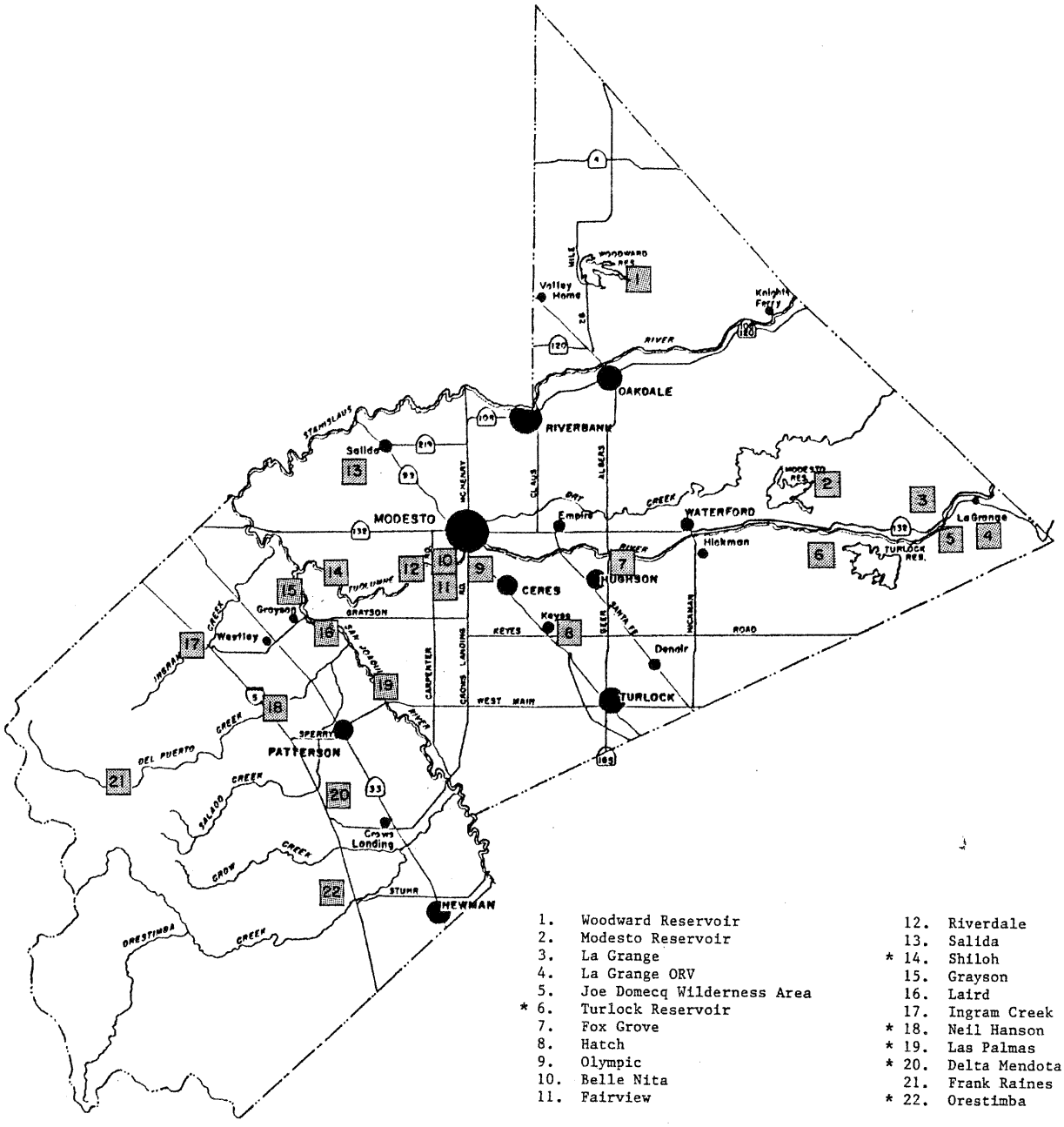
Coordination between the County and cities of Modesto and Ceres has resulted in the additional realization of the 700 acre Tuolumne Regional Park located along the Tuolumne River. Included in this regional system are Modesto's Legion and Mancini Park and the County's Belle Nita Park.

In addition to regional parks, Stanislaus County operates several neighborhood parks in the area adjacent to the City of Modesto and in the unincorporated communities of Salida, Keyes, and Grayson. At the present time the County is not attempting to develop additional neighborhood parks due to financial constraints. However, as these constraints lessen, additional neighborhood park sites will be pursued through various funding to accommodate growth in the unincorporated communities.

Other non-county maintained recreational facilities available to County residents include an 11-acre wayside rest on Interstate 5, the California Aqueduct Bikeway, the South Bay Complex 1, (which is an undeveloped 5,351 acre Bureau of Land Management holding in the Diablo Mountains), a 228 acre Turlock Lake State Park, (a facility which includes campsites, picnic areas and a boat ramp), the U.S. Army Corps of Engineers Stanislaus River Parks project as part of the New Melones Dam Project, various city parks and golf courses, Del Rio Gold and Country Club, the Old Fisherman's Club and various gun clubs to mention a few.

Overall, the County's regional park system seems more than adequate to meet current demands. Continued development of already acquired property, when feasible, will insure its adequacy.

COUNTY PARKS



1. Woodward Reservoir
2. Modesto Reservoir
3. La Grange
4. La Grange ORV
5. Joe Domecq Wilderness Area
* 6. Turlock Reservoir
7. Fox Grove
8. Hatch
9. Olympic
10. Belle Nita
11. Fairview
12. Riverdale
13. Salida
* 14. Shiloh
15. Grayson
16. Laird
17. Ingram Creek
* 18. Neil Hanson
* 19. Las Palmas
* 20. Delta Mendota
21. Frank Raines
* 22. Orestimba

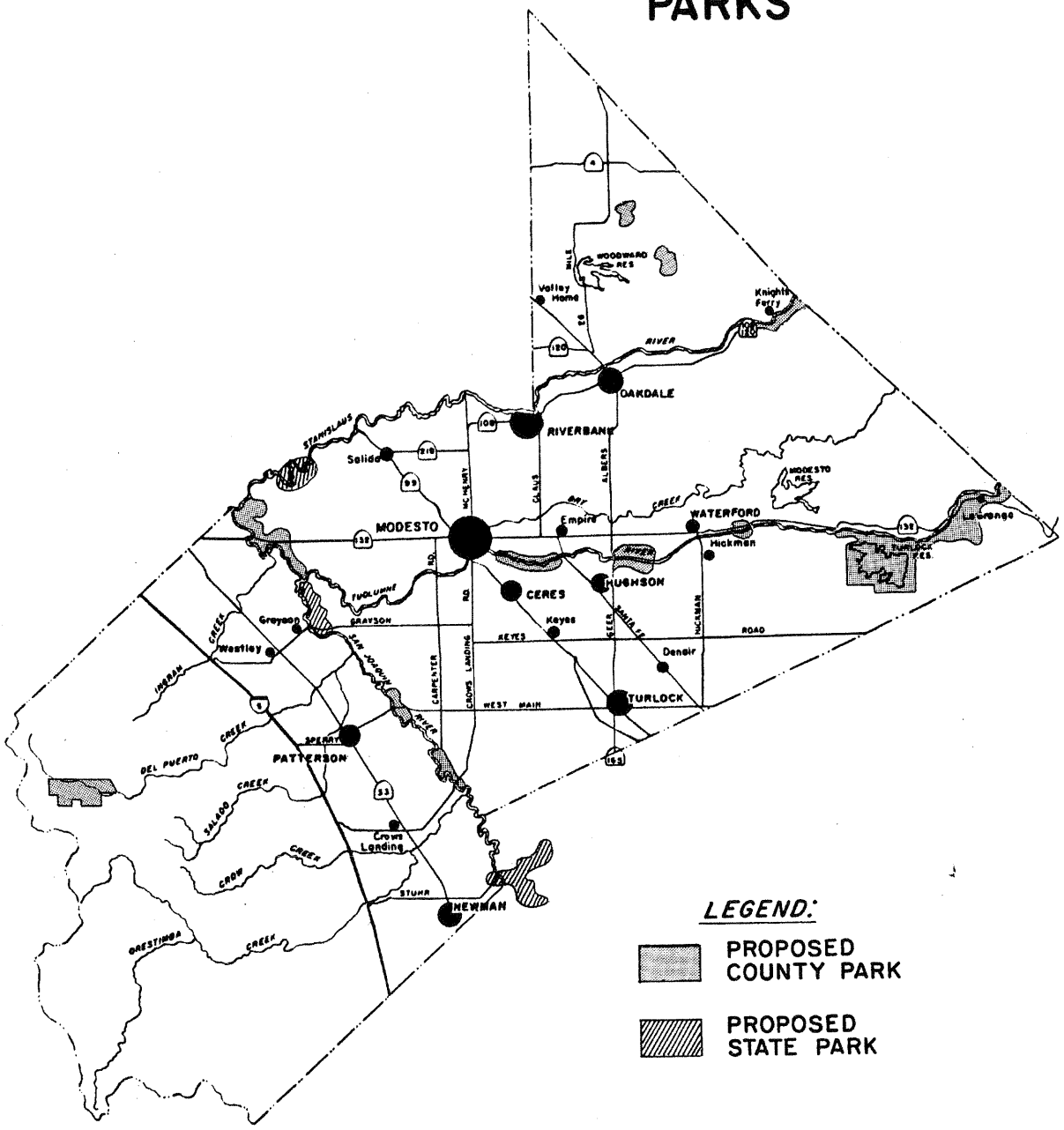
* Fishing Access

There are a number of additional parks which have been proposed by both the County and State. (See map on page 3-47). The State of California has suggested expansion of Hatfield State Park from Merced County into Stanislaus County and of Caswell State Park from San Joaquin County into Stanislaus County. The State also proposed a park along the San Joaquin River, located approximately between the junction of the Tuolumne River on the north and Laird Park on the south.

The County has proposed a future park from north of the junction of San Joaquin and Tuolumne Rivers to the San Joaquin County line. These proposals, combined with the proposed State park, would create a continuous park along the river area from the county line south to Laird Park. The County has also proposed the addition of a future fishing access in Laird Park. Two other areas further south along the San Joaquin River have also been considered for county parks. These river parks could provide both recreational activities and a means to preserve riparian areas basically intact.

The County Parks Department has designated the location for development of additional regional parks including the combination of La Grange and Turlock Lake Parks into one continuous park system, expansion of Frank Raines Park in Del Puerto Canyon for a major off-highway vehicle park to serve the Bay Area and central California, developing the new area along the Stanislaus River in the Knights Ferry area, Little John Creek in the northeast portion of the County, and several sites along the Tuolumne River. These proposals will occur as funds become available. The County will continue to pursue various funding options for providing recreational opportunities to its residents.

PROPOSED PARKS



The U.S. Army Corps of Engineers' Lower Stanislaus River Preservation Plan should be recognized as an innovative approach for the preservation of rivers and streams while protecting valuable riparian and historical areas and providing recreational opportunities. The purchase of flowage and vegetation easements along the entire lower river has been completed and several of the proposed parks are now complete, including the Knights Ferry, Orange Blossom, Valley Oak and Oakdale Recreation areas. (See map on page 3-49)

The Stanislaus River parks will include a wide variety of landscapes, from steep canyons east of Knights Ferry in the Knights Ferry Recreation Area, to the extensive agricultural flatlands of the San Joaquin Valley in the McHenry Avenue or Riverbank Recreational areas still to be developed. Close to several major metropolitan areas, the recreational opportunities are as varied as the geography. On the river, you can go swimming, kayaking, canoeing, rafting and fishing. Along the banks, the jungle-like vegetation forms a picturesque backdrop for picnicking, hiking, camping, and bank fishing.

One of the major objectives of the Stanislaus River Parks program is for the preservation and re-establishment of the riparian habitat. Vegetation along the banks provides food and shelter for a multitude of amphibians, reptiles, birds, and mammals. Representative mammals include muskrat and beaver. Found among the willows, wild grape, and cottonwoods along the river are great blue herons, green herons, and common egrets. Populations of bullfrogs, turtles, and salamanders are also found.

Away from the river are the vast grasslands and agricultural areas of the Great Central Valley. Coyotes, rabbits, ground squirrels and mice make up the grassland population. Overhead, white-tailed kites, meadowlarks, sparrows and red-tailed hawks are present.

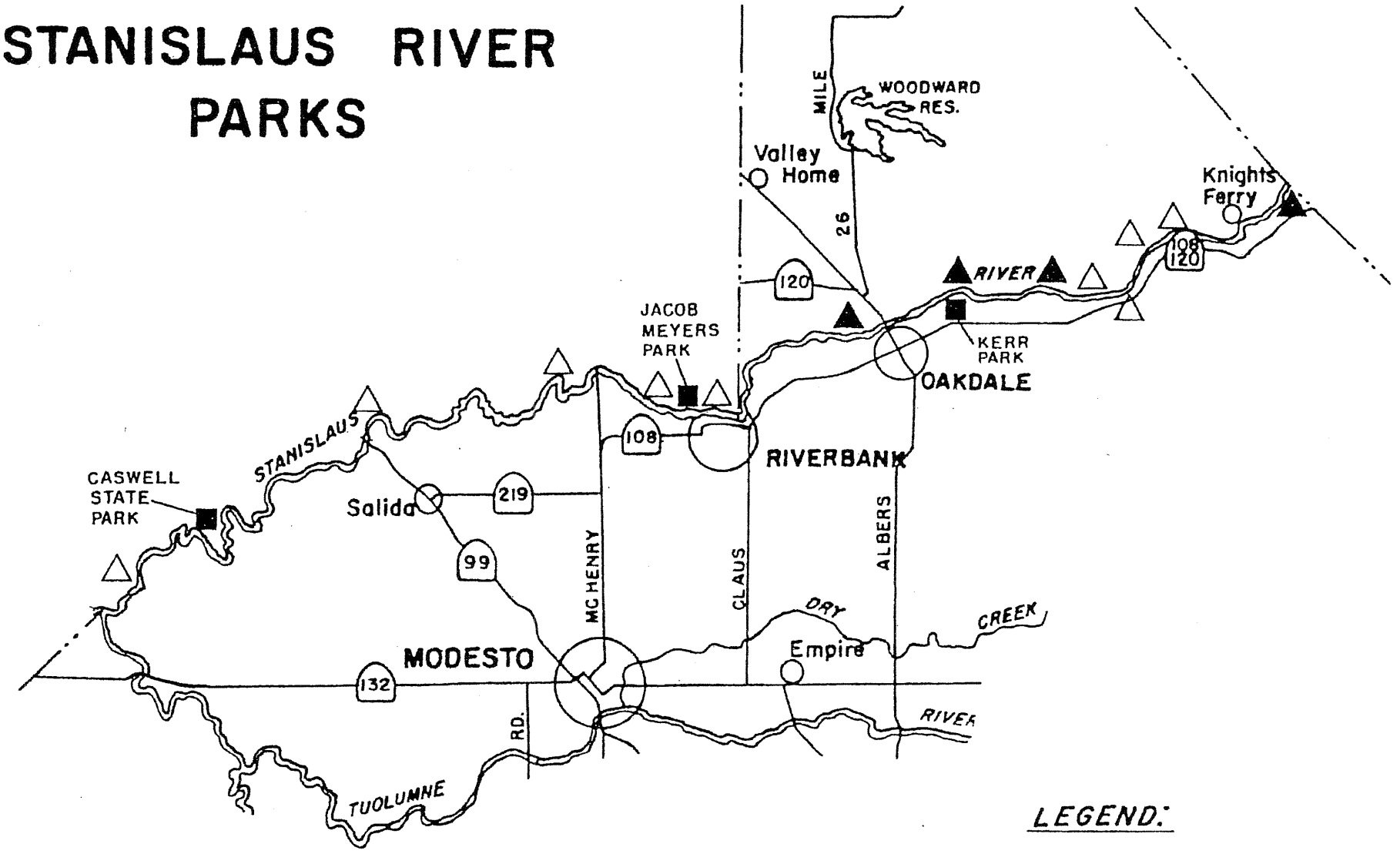
Upriver and eastward from the Central Valley, the grasslands give way to the foothill woodland plant community. Marking the beginning to the Sierra Nevada, toyon, interior live oak, digger pine, and buckbrush have adapted to the hot, dry summers. Spring is perhaps the best time to enjoy this area, as colorful displays of wildflowers and lush green grasses decorate the hillsides. Wildlife that can be seen include gray fox, blacktail deer, raccoon, striped skunk, scrub jay, white-crowned sparrow, California vulture, Pacific rattlesnake, and the western fence lizard. Bald eagles have been sighted frequently during the winter months in the Turlock Lake area and infrequently near Modesto Reservoir.

The Knights Ferry Recreation Area provides a unique opportunity to visit the past. The town of Knights Ferry was founded during the gold rush era and still retains many of its original structures, despite numerous floods and fires. The covered bridge, built in 1863, is 330 feet long, making it the longest covered bridge west of the Mississippi River.

At the north end of the bridge are the remains of the Tulloch Mill and an old stone house. The mill was first operated as a flour mill, then, at the turn of the century, was converted to one of California's first hydroelectric plants. Portions of the old underground shaft, used to transport water to power the generators, can still be seen on the hillside behind the stone house, which served as an office for the mill. Upstream from the bridge are the concrete ruins of a large dam, which collected and diverted water to turn the mill's waterwheel.

Evidence of early Indian occupation of the area can be found in the rocks upstream from the bridge. Mortar sites, where the Indians would grind acorns, are visible. A settlement of 250 Indians resided in this area during the 1850's, mostly living across the river from the town. This number declined to about 100 by 1880.

STANISLAUS RIVER PARKS



Historic and Cultural Sites

Historical sites and landmarks are reminders of the social, cultural, and political history of Stanislaus County. They provide insight to the County's present by maintaining ties to its past. The County has recognized this fact and has taken steps to protect its most significant historical sites.

Areas that are considered "sensitive" (likely to have archaeological or historic cultural resources), are often located near natural watercourses, springs, or ponds, and on elevated ground. Many archaeological sites in the Central Valley have been buried by silt and might not be evident by inspection of the surface of the ground. The channels of natural watercourses change (meander) over the years and springs dry up, therefore, archaeological sites may be found in areas that are distant from present sources of water.

Only an estimated 8 percent of Stanislaus County has been surveyed for evidence of archaeological or historical cultural resources. There are 230 recorded cultural resource sites in Stanislaus County; 206 are archaeological sites and 24 are historical sites. These records of known archaeological and historical sites are filed with the Office of Historic Preservation, Central California Information Center, California State University, Stanislaus, Turlock, California. Exact locations are kept confidential so as to protect these valuable resources.

Major impacts upon some types of archaeological and historical cultural resources include agricultural leveling, housing and road construction, ditch digging, and generally, most types of urban and rural development.

The California Environmental Quality Act requires review to include archaeological and historical cultural resources. Types of archaeological cultural resources that might occur in Stanislaus County include occupation sites, indicated by structural features such as house pits, ceremonial locations, remains of sweathouses and storage structures. Occupation site deposits, often called "midden sites" are rich in materials such as charcoal, burned bone, chipped and ground stone, fire-cracked rock, baked clay, shell and glass (trade) beads, and (rarely) pottery. Other types of archaeological sites include cemeteries, isolated burials, quarry sites, petroglyphs (rock carvings), and pictograph (rock painting) sites, kill sites where animals were killed and butchered, and sites where certain types of resources (stone, vegetal, clay, paint pigments) were obtained or processed.

Historic sites include old homes, adobes, cabins, and structures or features related to agriculture, mining, logging and other enterprises. Historic resources are recognized as significant if they are more than 50 years old, but some structures or features have been used more recently, and because of their character, associations or appearance are of local, county, state, or national significance.

Significance is one of the least understood concepts in historic and archaeological preservation. When assessing significance, an effort should be made to ensure that properties important to all sorts of people, and properties representing all sorts of cultural phenomena, are intelligently and efficiently treated.

Significance identifies the potential of a given archaeological or historic cultural resource to have or impart information pertaining to public, historical, scientific, ethnic, social or other aspects of the common human heritage on a local, county, state, or national level. Significant cultural resources may be one of a kind, or they may be representative of their type; they may be the oldest known examples of their kind; they may be associated with the lives of important individuals; they may be significant to specific interest groups.

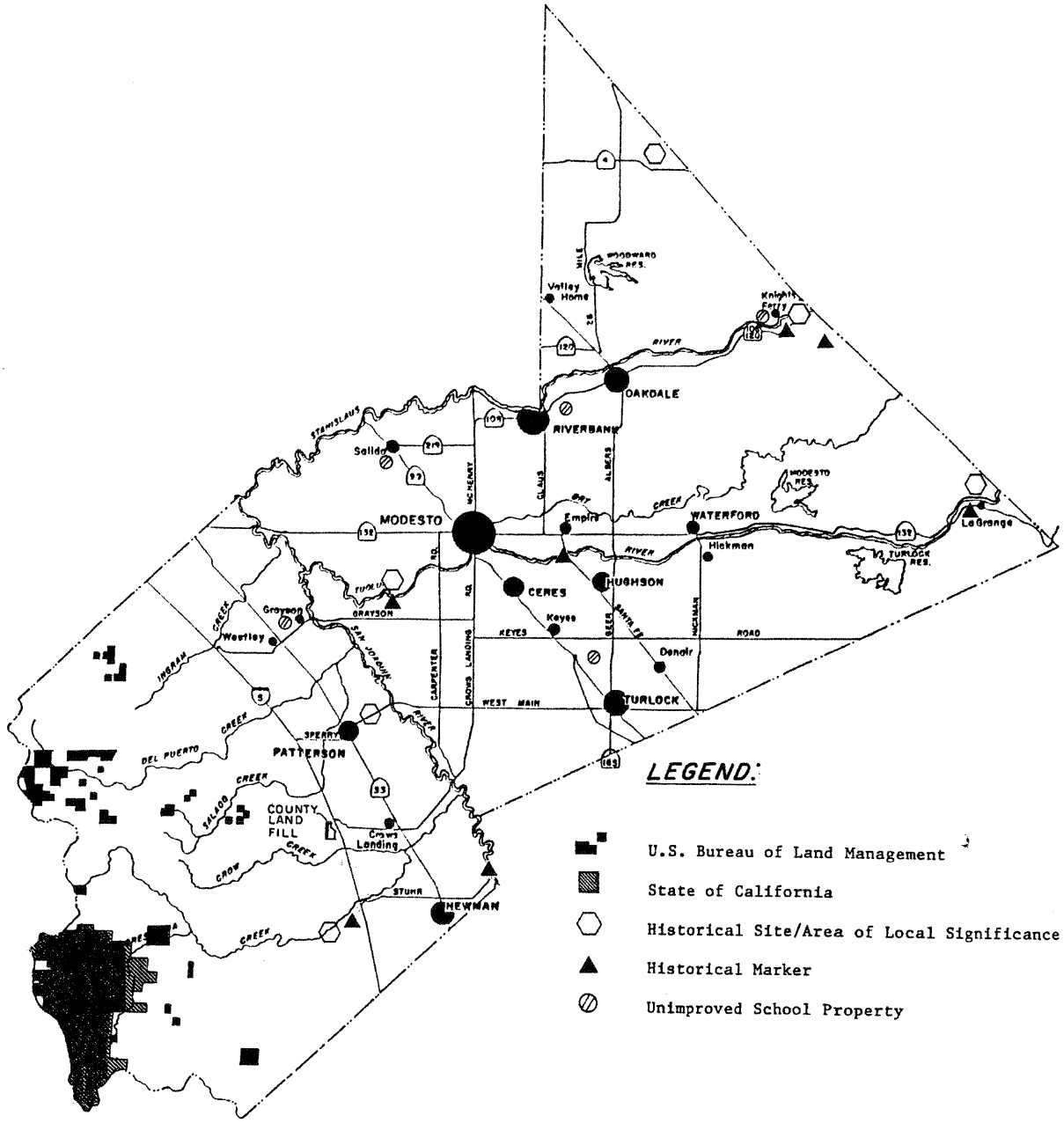
The significance of a cultural resource may be derived from professional interests (such as research values), or social concerns (heritage values), and significance may entail both realized and potential qualities.

The two chief historical areas within Stanislaus County are in and around the gold rush towns of Knights Ferry and La Grange. Located in the community are a number of historic buildings considered worthy of preservation. The County, working closely with the residents of these communities, has established a historical site zone ensuring that all development within the two towns will be consistent with their historical nature.

Adjacent to the town of La Grange, the County has developed a 750 acre historic park. The vast majority of this acreage has been preserved in its natural state. The central attractions are an abandoned mining camp in the area and an old adobe building, stage stop, old schoolhouse, and cemetery. In the Knights Ferry area, a historical bridge is covered by HS (Historical Site) zoning, and is being preserved as part of the Army Corps of Engineers project on the Stanislaus River.

There are a number of other points of historical interest within Stanislaus County: The communities of Grayson and Empire (City), which were former county seats; the site of Adamsville, an early settlement and first County seat; palm tree-lined Las Palmas Avenue; and the Orestimba Creek Indian Area. There is also a prehistoric grinding site off Highway 4 on the Orvis Ranch (the Old Snow Ranch), west of Copperopolis. Historical markers are located at the Empire City Site, Knights Ferry, La Grange, and Langworth (between Riverbank and Oakdale). (See map on page 3-52)

PUBLIC OPEN SPACE LANDS



Scenic Highways

Scenic Highways are a means of preserving the beauty and quality of various transportation routes. The scenic highway designation maintains areas which are in their natural or undeveloped condition. The State of California has designated various State highways as having natural scenic beauty worthy of preservation. Within Stanislaus County, Interstate Highway 5 is an officially adopted State Scenic Highway. The State has no other potential scenic highways designated within the County.

Past studies have identified several routes as potential scenic routes including State Highway 132 (west of Modesto), Orange Blossom Road, La Grange Road, and Del Puerto Canyon Road. In addition to these, State Highway 4, in the north-eastern portion of the County seems worthy of preservation as a scenic highway. All of the above listed roads are characterized, with minor exceptions, by open, undeveloped areas, in either a natural condition or devoted to agricultural production, much like the area along Interstate 5.

PUBLIC HEALTH AND SAFETY

Public health and safety requires special consideration in the Open Space Element. Open space conservation and preservation is essential for public health and safety, especially in areas subject to fires, earthquakes, landslides, flooding, and poor water quality. By preserving these areas from development, Stanislaus County can aid in the protection of the community from any unreasonable risks associated with identified hazards. This section identifies hazards which exist in Stanislaus County. A more detailed explanation can be found in the Safety Element.

Fire Hazards

The two types of fire hazards are urban and brush fires. The problems of each are different as are the possible solutions to them.

Urban fire hazards are primarily those associated with commercial, industrial and residential structures and activities surrounding them. These occur for a wide variety of reasons associated with human activities, with the hazard and danger of any particular fire dependent upon the individual circumstances. In general, however, fire hazards are greatest in residential and commercial areas containing older, less well-cared for buildings which do not meet building codes. There are numerous areas of such buildings throughout the County, in both cities and unincorporated areas.

Property damage from urban fires is often substantial, although in the majority of cases, damage can be limited to only one or a few structures. Injuries and deaths are more frequent in residential fires than any other type.

Brush fire hazards can be traced to four causes: topography, vegetation, climate, and people. Chaparral, grasslands and other wild plant life provide the major sources of fire fuel. Stanislaus County has a Mediterranean type of climate with cool, wet winters and hot, dry summers. The hot, dry summers in Stanislaus County produce large areas of extremely dry vegetation often located on topography which enhance the spread of flames and prohibits access of fire fighting equipment. When people are introduced into the above situation, the chances of fires are greatly increased due to the variety of activities in which they engage.

Within Stanislaus County, the areas of potential brush fires are the Diablo Range, generally located west of Interstate 5, and the Sierra Nevada foothills in the eastern portions of the County. According to the California State Division of Forestry, the majority of these areas are rated as having the highest possible critical fire weather frequency on an annual basis. This factor, combined with vegetation and slope percentage, produce overall fire ratings of moderate to high throughout the fire hazardous areas.

Brush fires have a secondary effect on erosion which can occur due to loss of vegetation. This erosion effects not only the burned land, but also land below it where eroded material may be deposited.

Although the County has no single unified set of safety standards, there are a number of standards, specifications, and regulations which apply to fire safety. These include Building Code Standards, zoning, and subdivision regulations that specify building material quality, setbacks, relationships between land uses, land use density, and preservation of open space lands. The major impact of these standards has been directed towards current and future development. They do little to alleviate urban fire problems in older areas. The social and economic ramifications of attempting to mitigate the potential threat of fire hazardous structures are great.

Seismic and Geologic Hazards

Earthquakes originate as movement or slippage occuring along an active fault. These movements generate shock waves that result in ground shaking. Structures of all types, if not designed or constructed to withstand ground shaking, may suffer severe damage or collapse. Likewise, some slopes will collapse due to the soil or geological characteristics resulting in hazard both in terms of failure in structures located thereon, or within the path of resulting land slides.

There are several faults known to exist within Stanislaus County. In the extreme eastern part of the County, the Bear Mountain and Melones faults are found, though believed to have been inactive for the past 150 million years. No faults are currently known to exist within the valley portion of the County. Within the Diablo Range, the most recent movements were along the Tesla-Ortigalita fault approximately five million years ago, although earthquake activity without surface fracturing or faulting is still common. Since 1930, one earthquake epicenter of a magnitude greater than 4.0 on the Richter scale was recorded in Stanislaus County.

Numerous earthquakes occur each year along California's major faults which are the San Andreas, Calavaras, Hayward, and Nacimento faults.

Information furnished by the State Department of Mines and Geology indicates that ground shaking along these faults can produce damage within the County to reach varying intensities rated on the Modified Mercalli Intensity Scale of 1931. The eastern half of the County can be expected to have shaking to an intensity of VI or VII, producing minor to moderate damage. The western half of the County can expect to receive shaking to an intensity of VII or VIII Mercalli which can cause considerable damage to ordinary structures. The area around the City of Newman may experience a shaking intensity of IX or X.

Aside from structural damage, earthquake activity can produce two other types of adverse effects. The first is ground failure, which itself is a factor in making some lands unsuitable for development. Virtually the entire area located west of Interstate 5 is composed of geological formations that, due to structure, slope, runoff, lack of vegetation, earthquake and/or human activity, are considered extremely susceptible to failure and sliding. On a California Division of Mines and Geology scale used to rate landsliding potential, this area is rated at five, the next to highest rating on a scale of six. The prime reason is the generally unstable formation comprising the underlying geologic structure of the Diablo Range. The remainder of the area is rated at six.

There is a history of a number of major slides throughout the Diablo Range in Stanislaus County. It is evident that the steep slopes and unstable geology of the area on the west side of the County, even without considering the very real possibility of an earthquake, present a substantial limitation to building. Construction is possible within this area, but a detailed engineering site study and possible special construction make development difficult and costly.

Flood Hazard

Flooding has been a major problem throughout the history of Stanislaus County, particularly with the encroachment of urban growth into floodplains. Major floods have occurred in 1861, 1938, 1950, 1955 and 1969. Substantial action has taken place which reduces flooding hazards such as the New Don Pedro Dam on the Tuolumne River, and the New Melones Dam on the Stanislaus River near Jamestown. These dams should eliminate flood danger except under extremely unique circumstances.

The State Reclamation Board has identified and adopted floodplains, defined in cubic feet per second of flow, along the San Joaquin River, Stanislaus River, Tuolumne River and portions of Dry Creek. Any non-agricultural encroachment into these areas requires a permit from the Reclamation Board, which will serve to prevent reduction in channel capacity of the waterways.

The Federal Emergency Management Agency conducted a study identifying flood zones. As a result of that study, the National Flood Insurance Act of 1968 was enacted. Stanislaus County adopted an ordinance in response to this act. Any building permit acquired within the 100-year flood zone designation must comply to the ordinance.

Another significant type of damage, which can result from earthquake activity, is from flooding caused by dam failure. There are a number of dams, both in and out of the County on the east and west sides, which could produce flooding should they fail. There are requirements that the owners of dams prepare maps showing areas which would be flooded should the dams fail. Dam failure inundation maps are available for dams on the Stanislaus and Tuolumne Rivers.

Water Table

There are a number of areas within the County which have a relatively high water table that can cause problems if septic tanks are used. A high water table (often coupled with adverse absorptive qualities of the soil), can cause septic tank failures and possible deterioration of ground water quality resulting in health hazards. The westside community of Crows Landing depend entirely upon individual septic tanks in areas of high water table and poor soil percolation conditions. High water tables are also found around Turlock extending to the San Joaquin River.

Water Quality

Agricultural and urban water supplies for Stanislaus County originate from both ground water and surface water. The main sources for surface water are the three major rivers; the Stanislaus, Tuolumne, and the San Joaquin. These rivers all contain water of excellent quality at their sources in the Sierra Nevada, but as they flow through the valley, their quality is impaired by each successive use. Both agricultural and domestic use and return contribute to this degradation. As flows decrease seasonally, concentrations of pollutants increase, particularly in the San Joaquin, which serves as a drain for return water and domestic and industrial wastes through the entire San Joaquin Valley. Quality of the Stanislaus River is somewhat deteriorated at its confluence with the San Joaquin River. The Tuolumne's condition has deteriorated more than the Stanislaus due to agricultural return wastes and gas well wastes by the time it reaches the San Joaquin.

Ground water is the major source of domestic and industrial water in Stanislaus County, and is used as supplemental water supply for irrigation. Open space land is the main contributor to ground water recharge. The quality of ground water is determined by the geologic formations through which it filters and thereby cannot be controlled.

The ground water situation west of the San Joaquin River is substantially different from the rest of the County to the east. There are three major problems which exist: a rising, perched water table, saline build-up in the soil and an increasing imbalance in the ground water body. These conditions exist through combinations of canal seepage, excessive irrigation and poor quality irrigation waters. The cumulative effect of these problems can reduce crop yield and soil productivity. In attempting to reduce the salt imbalance, excessive amounts of water have been put in the soil causing serious drainage problems.

The decreasing ground water quality is having adverse effects on domestic water supplies as well as the agricultural lands. As ground water becomes unacceptable for domestic use, other sources will have to be found. One solution that has been suggested is the use of water from the Delta Mendota Canal for domestic purposes. This water currently meets public health standards.

The ground water east of the San Joaquin River does not have the serious problems that exist on the west side. Depth of the water table varies from only a few feet around Turlock to several hundred feet. The overall quality of ground water is good, although some chemicals are present in varying amounts that might eventually cause some problems. Ground water pumping around Modesto, improperly sealed wells, and past dairying practices have contributed to increasing concentrations of certain chemicals.

Around Modesto the overall ground water supply appears good, except in the extreme eastern portion. Extensive pumping, coupled with insufficient recharge (due to continued covering of recharge areas with impervious surfaces), has created a cone of depression in the Modesto area water table. Urbanization of agricultural lands surrounding Modesto (which are also prime water recharge areas), will likely cause this cone of depression to continue to increase in size. Aside from lowering the amount of water available, this cone of depression has also caused an increase in the chloride levels of the ground water.

Air Quality

Open space is beneficial to the air quality of an area. Large amounts of open undeveloped areas, including broad base and limited base agricultural lands, contribute to air quality positively through the hydrogen oxygen cycle and negatively by generating dust pollutants. Some agricultural practices on extensively farmed land including burning, use of agricultural hullers, and use of chemical spraying to kill weeds, leaving the soil vulnerable to erosion for months, do contribute at times to an increased pollutant level. Some of these activities can be controlled by the local Air Pollution Control District which, for instance, only allows agricultural burning on relatively clean air days. Loss of agricultural open space to urbanization usually means the loss of oxygen producing plants, increased vehicular pollution, and possible emission producing commercial or industrial land uses. Ironically, location of urban intensity development on low quality soils, while logical from the aspect of prime agricultural preservation, often results in scattered development patterns substantially increasing the amounts of air pollution resulting from vehicular emission.

In predominantly agricultural areas, wind can loosen and carry dirt and dust which may reduce visibility and cause considerable crop damage. The dry and arid climate of the County, coupled with windy conditions caused by the Diablo Mountain Range and agricultural activities, creates atmospheric dust that has caused automobile accidents, crop damage ranging from delayed growth and reduced yield to actual crop death and respiratory ailments that sometimes prove fatal.

APPENDIX

APPENDIX III-1

SURFACING MINING AND RECLAMATION ACT OF 1975

Surfacing Mining and Reclamation Act of 1975

Article 1. General Provisions

2710. This chapter shall be known and may be cited as the Surface Mining and Reclamation Act of 1975.

2711. (a) The legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment, and to protect the public health and safety.

(b) The legislature further finds that the reclamation of mined lands as provided in this chapter will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(c) The legislature further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations and the specifications therefore may vary accordingly.

2712. It is the intent of the legislature to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

(b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Residual hazards to the public health and safety are eliminated.

2713. It is not the intent of the legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

2714. The provisions of this chapter shall not apply to any of the following activities:

(a) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(b) Prospecting for, or the extraction of, minerals for commercial purposes and the removal of overburden in total amounts of less than 1,000 cubic yards in any one location of one acre or less.

(c) Surface mining operations that are required by federal law in order to protect a mining claim, if such operations are conducted solely for the purpose.

(d) Such other surface mining operations which the board determines to be of an infrequent nature and which involves only minor surface disturbances.

2715. No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the following:

(a) On the police power of any city or county or on the power of any city or county to declare, prohibit, and abate nuisances.

(b) On the power of the Attorney General, at the request of the board, or upon his own motion, to bring an action in the name of the people of the State of California to enjoin any pollution or nuisance.

(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in Part 3 (commencing with Section 3479), of Division 4 of the Civil Code or for any other private relief.

(e) On the power of any city or county to regulate the use of buildings, structures, and land as between industry, business, residents, open space (including agriculture, recreation, the enjoyment of scenic beauty, and the use of natural resources), and other purposes.

2716. Any person may commence an action on his own behalf against the board or the State Geologist for a writ of mandate pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure to compel the board or the State Geologist to carry out any duty imposed upon them pursuant to the provisions of this chapter.

2717. The board shall submit to the legislature on December 1st of each year a report on the actions taken pursuant to this chapter during the preceding fiscal year. Such report shall include a statement of the actions, including legislative recommendations, which are necessary to carry out more completely the purposes and requirements of this chapter.

2718. If any provision of this chapter, or the application thereof, to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

Article 2. Definitions

2725. Unless the context otherwise requires, the definitions set forth in this article shall govern the construction of this chapter.

2726. "Area of regional significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located, and which if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance.

2727. "Area of statewide significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state, and, which if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.

2728. "Lead Agency" means the city or county which has the principle responsibility for approving a surface mining operation pursuant to this chapter.

2729. "Mined lands" includes the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

2730. "Mining waste" includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

2731. "Operator" means any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf, except a person who is engaged in surface mining operations as an employee with wages as his sole compensation.

2732. "Overburden" means soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations.

2732.5 "Permit" means any authorization from, or approval by, a lead agency, the absence of which would preclude surface mining operations.

2733. "Reclamation" means the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and to create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

2734. "State policy" means the state policy for the reclamation of mined lands adopted pursuant to Section 2755.

2735. "Surface mining operations" means all or any part of the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine.
Surface mining operations shall include, but are not limited to:

(a) Inplace distillation or retorting or leaching.

(b) The production and disposal of mining waste.

(c) Prospecting and exploratory activities.

Article 3. District Committees

2740. In carrying out the provisions of this chapter, the board may establish districts and appoint one or more district technical advisory committee to advise the board. In establishing districts for these committees, the board shall take into account physical characteristics, including but not limited to, climate, topography, geology, type of overburden, and principle mineral commodities. Members of the committees shall be selected and appointed on the basis of their professional qualifications and training in mineral resource conservation, development and utilization, land use planning, mineral economics, or the reclamation of mined lands.

2741. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

Article 4. State Policy for the Reclamation of Mined Lands

2755. On or before January 1, 1977, the board shall adopt state policy for the reclamation of mined lands in accordance with the general provisions set forth in Article 1 (commencing with Section 2710) of this chapter and pursuant to Chapter 4.5 (commencing with Section 11371) of Part 1 of Division 3 of Title 2 of the Government Code.

2756. State policy shall apply to the conduct of surface mining operations and shall include, but shall not be limited to, measures to be employed by local governments in specifying grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control, waste disposal, and flood control.

2757. The state policy adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of mined lands, and shall be used as standards by local governments in preparing specific and general plans, including the conservation and land use elements of the general plan, and zoning ordinances. The state policy shall not include aspects of regulating surface mining operations which are solely of local concern, and not of statewide or regional concern, as determined by the board, such as, but not limited to, hours of operation, noise, dust, fencing, and purely aesthetic considerations.

2758. Such policy shall include objectives and criteria for all of the following:

(a) Determining the lead agency pursuant to the provisions of Section 2771.

(b) The orderly evaluation of reclamation plans.

(c) Determining the circumstances, if any, under which the approval of a proposed surface mining operation by a lead agency need not be conditioned on a guarantee assuring reclamation of the mined lands.

2759. The state policy shall be continuously reviewed and may be revised. During the formulation or revision of such policy, the board shall consult with, and carefully evaluate the recommendations of the State Geologist, any district technical advisory committees, concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals.

2760. The board shall not adopt or revise the state policy unless a public hearing is first held respecting their adoption or revision. At least 30 days prior to such hearing, the board shall give notice of the hearing by publication pursuant to Section 6061 of the Government Code.

2761. (a) On or before January 1, 1977, and as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify urban and urbanizing portions of the following areas within the state subject to urban expansions or other irreversible land uses:

(1) Standard metropolitan statistical areas and such other areas for which information is readily available.

(2) Other areas as may be requested from time to time by the board.

(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, and such other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation.

(c) As it is completed by the County, the State Geologist shall transmit such information to the board for incorporation into the state policy and for transmittal to lead agencies.

2762. (a) Within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize mineral information classified by the State Geologist and transmitted by the board.

(2) Assist in the management of land use which affects areas of statewide and regional significance.

(3) Emphasize the conservation and development of identified mineral deposits.

(b) Every lead agency shall submit proposed mineral resource management policies to the board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policy previously reviewed by the board shall also require review and comment by the board.

(d) Prior to permitting a use which would threaten the potential to extract minerals in an area classified by the State Geologist as an area described in paragraph (3) of subdivision (b) of Section 2761, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the significance of the mineral deposit located therein. The results of such evaluation shall be transmitted to the State Geologist and the board.

Article 5. Reclamation Plans and The Conduct of Surface Mining Operations

2770. Except as specified in Section 2776, no person shall conduct surface mining operations unless a permit is obtained from, and a reclamation plan has been submitted to, and approved by, the lead agency for such operation pursuant to this article.

2771. Whenever a proposed surface mining operation is within the jurisdiction of two or more public agencies, is a permitted use within the agencies, and is not separated by a natural or man-made barrier coinciding with the boundary of the agencies, the evaluation of the proposed operation shall be made by the lead agency in accordance with the procedures adopted by the lead agency pursuant to Section 2774. In the event that a dispute arises as to which is the lead agency, any public agency which is a party to the dispute may submit the matter to the board; and the board shall designate the lead agency, giving due consideration to the capability of such agency to fulfill adequately the requirements of this chapter.

2772. The reclamation plan shall be filed with the lead agency on a form provided by the lead agency, by any person who owns, leases or otherwise controls or operates on all, or any portion of, any mined lands, and who plans to conduct surface mining operations thereon. The reclamation plan shall include the following information and documents:

(a) The name and address of the operator and the names and addresses of any persons designated by him as his agents for the service of process.

(b) The anticipated quantity and type of minerals for which the surface mining operation is to be conducted.

(c) The proposed dates for the initiation and termination of such operation.

(d) The maximum anticipated depth of the surface mining operation.

(e) The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands.

(f) A description of and plan for the type of surface mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.

(g) A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.

(h) A description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished, including:

(1) A description of the manner in which contaminants will be controlled, and mining waste will be disposed; and

(2) A description of the manner in which rehabilitation of affected streambed channels and streambanks to a condition minimizing erosion and sedimentation will occur.

(I) An assessment of the effect of implementation of the reclamation plan on future mining in the area.

(j) A statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.

(k) Any other information which the lead agency may require by ordinance.

2773. The reclamation plan shall be applicable to a specific piece of property or properties, and shall be based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principle mineral commodities.

2774. Every lead agency shall adopt ordinances establishing procedures for the review and approval of reclamation plans and the issuance of a permit to conduct surface mining operations. Such procedures shall require at least one public hearing and periodic inspections of surface mining operations, and may include provisions for liens, surety bonds, or other security to guarantee reclamation in accordance with the reclamation plan. Such ordinances shall be continuously reviewed and revised, as necessary, in order to ensure that such ordinances are in accordance with state policy. Lead

agencies shall notify the State Geologist of the filing of an application for a permit to conduct surface mining operations. On the request of a lead agency, the State Geologist shall furnish technical assistance to assist in the review of reclamation plans.

2775. (a) An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency, or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may, within 15 days of exhausting his rights to appeal in accordance with the procedures of the lead agency, appeal to the board.

(b) The board, may by regulation, establish procedures for declining to hear appeals that it determines raise no substantial issues.

(c) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing held within the jurisdiction of the lead agency which processed the original application within 30 days of the filing of the appeal, or such longer period as may be mutually agreed upon by the board and the person filing the appeal. In any such action, the board shall not exercise its independent judgement on the evidence but shall only determine whether the decision of the lead agency is supported by substantial evidence in the light of the whole record. If the board determines the decision of the lead agency is not supported by substantial evidence in the light of the whole record, it shall remand the appeal to the lead agency and the lead agency shall schedule a public hearing to reconsider its action.

2776. No person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a permit pursuant to the provisions of this chapter as long as such vested right continues, provided however, that no substantial changes may be made in any such operation except in accordance with the provisions of this chapter. A person shall be deemed to have such vested rights if, prior to January 1, 1976, he has, in good faith and in reliance upon a permit or other authorization, if such permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefore. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

A person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall submit to the lead agency and receive, within a reasonable period of time, approval of a reclamation plan for operations to be conducted after January 1, 1976, unless a reclamation plan was approved by the lead agency prior to January 1, 1976, and the person submitting the plan has accepted responsibility for reclaiming the mined lands in accordance with the reclamation plan.

Nothing in this chapter shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to January 1, 1976.

2777. Amendments to an approved reclamation plan may be submitted detailing proposed changes from the original plan. Substantial deviations from the original plans shall not be undertaken until such amendment has been filed with, and approved by, the lead agency.

2778. Reclamation plans, reports, applications, and other documents submitted pursuant to this chapter are public records, unless it can be demonstrated to the satisfaction of the lead agency that the release of such information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The lead agency shall identify such proprietary information as a separate part of the application. Proprietary information shall be made available only to the State Geologist and to persons authorized in writing by the operator and by the owner.

A copy of all reclamation plans, reports, applications, and other documents submitted pursuant to this chapter shall be furnished to the State Geologist by lead agencies on request.

2779. Whenever one operator succeeds to the interest of another in any incomplete surface mining operation by sale, assignment, transfer, conveyance, exchange or other means, the successor shall be bound by the provisions of the approved reclamation plan and the provisions of this chapter.

Article 6. Areas of Statewide or Regional Significance

2790. After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may, by regulation adopted after a public hearing, designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature, incompatible development of the area.

2791. The board shall seek the recommendations of concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of areas of statewide and regional significance.

2792. Neither the designation of an area of regional or statewide significance, nor the adoption of any regulations for such an area shall in any way limit or modify the rights of any person to complete any development that has been authorized pursuant to Part 2 (commencing with Section 11000) of Division 4 of the Business and Professions Code, pursuant to the Subdivision Map Act (Division 2 (commencing with Section 66410) of Title 7 of the Government Code)), or by a building permit or other authorization to commence development, upon which such person relies and has changed his position to his substantial detriment, and, which permit or authorization was issued prior to the designation of such area pursuant to Section 2790. If a developer has by this action taken in reliance upon prior regulations, obtained vested or other legal rights that in law would have prevented a local public agency to abridge those rights.

2793. The board may, by regulation adopted after a public hearing, terminate, partially or wholly, the designation of nay area of statewide or regional significance on a finding that the direct involvement of the board is no longer required. (State Statutes, Ch. 9, Div. 2, P.R.C.)