

Enz Vineyards
Limekiln Road - Hollister, California 95023

Al Graham

Vineyards Established 1895
Bonded Winery 4641

Telephone
408-637-3956

October 3, 1977

RECEIVED
OCT 06 1977
Trade Affairs Branch

Mr. Rex Davis
Alcohol Tobacco and Firearms
Washington D. C. 20226

Dear Mr. Davis,

ENZ VINEYARDS would like to request your approval of
Lime Kiln Valley as an appellation.

Substantiating evidence for this request is enclosed
as follows:

1. Board of Supervisors resolution (certified copy)
2. Map showing Lime Kiln Valley
3. Newspaper article from Free Lance newspaper in
which official recognition of Lime Kiln Valley
as a established grape growing area since 1887 is
given.

Your earliest consideration to this request would be
greatly appreciated so that we may use the appellation Lime Kiln
Valley on this years vintage labels.

Thank you very much.

Yours truly,

ENZ VINEYARDS


Robert W. Enz

enclosures:

cc: Mr. Jim Seff, Wine Institute

Eng Vineyards
Limekiln Road - Hollister, California 95023

Vineyards Established 1895
Bonded Winery 4641

Telephone
408-637-3956

March 26, 1980

Alcohol Tobacco and Firearms
Washington D.C. 20226

SUBJECT: Request for appellation approval - LIME KILN VALLEY
REF: R:T:C:BB 5120

Dear Sirs:

We are resubmitting our petition to have LIME KILN VALLEY approved as an appellation. Partial substantiating evidence which you already have on file is as follows:

1. Board of Supervisors resolution (certified copy)
2. Map showing Lime Kiln Valley
3. Newspaper article from Free Lance newspaper in which official recognition of Lime Kiln Valley as a established grape growing area since 1887 is given.

Enclosed is continuing substantiating evidence as follows:

1. Map showing watershed boundary and soils map for Thompson Creek, Lime Kiln Road and Valley
2. Land capability classification
3. Special Report 56, California Division of Mines. Photo 33 shows Lime Kilns on our property

Thank you very much for your consideration of our application.

Sincerely,

ENZ VINEYARDS


Susan Enz

enclosures:

ENZ VINEYARDS
Box 1435
Hollister, California 95023

June 7, 1980

Mr. Richard A. Mascolo
Chief, Research and Regulations Branch
Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Washington D.C.

SUBJECT: Request for Appellation of Lime Kiln Valley

REFERENCE: Uniqueness of Lime Kiln Valley derived from a combination of unusual existing geographic, geological and climatic conditions.

Following is a list of some of the unique features of the valley:

1. GEOGRAPHIC:

- A. Existing vineyards located approximately 1000 ft. in elevation in the Gabilan Mountain Range.
- B. Watershed located 18.4 miles from the cool ocean.
- C. Located 19 miles from the hot San Joaquin Valley of interior California
- D. Due to the unique geographic and atmospheric conditions that exist, a native evergreen tree (Coulter Pine) only grows in this area. (see California Division of Forestry submittal)

2. GEOLOGICAL

- A. Abundance of Limestone and Granitic formations.
 - a. see soils map as submitted.
 - b. see "Geology and Economic Possibilities of the Limestone and Dolomite Deposits of the Northern Gabilan Range, California", as submitted.
- B. Abundance of water which bubbles forth through granitic and limestone formations as natural springs and artesian wells.
 - a. vineyards existing since 1895 without irrigation.
- C. Bedrock in vineyard growing areas range from 40 VF to approximately 120 VF
- D. Thompson Creek flows year around through the upper reaches down to about elevation 1000.

3. CLIMATIC

- A. The upper western reaches of Lime Kiln Valley watershed has an average annual rain fall of over 40 inches.
 - a. information obtained from C. Strohn, Ranch Manager Monte Benito Ranch.

- B. Lower eastern reaches of Lime Kiln Valley have an average rain fall of over 16 inches.
 - a. information obtained from D. Rosati, owner, Rosati Ranch.
- C. Region 2 viticultural growing area classification per University of California.
- D. Usual fog during early summer mornings which clears by mid morning. in western part of San Benito County closest to ocean.
- E. Winter temperatures well below freezing.
- F. Summer Temperatures:
 - a. day average = 85-95 degrees fahrenheit
night average = 45-50 degrees fahrenheit
- G. Prevailing trade winds come from the Northwest from the ocean.
- H. Lime Kiln Valley receives approximately 2.3 inches more rain on an average than Hollister.
 - a. elevation of Hollister is 350ft.
 - b. Hollister is 10.5 miles from Lime Kiln Valley in a North by Northeasterly direction
 - c. Hollister rainfall table from records of the U.S. Co-operative Weather Observer.

ENZ VINEYARDS
Box 1435
Hollister, California 95023

June 7, 1980

Mr. Richard A. Mascolo
Chief, Research and Regulations Branch
Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms
Washington D.C.

SUBJECT: Request for Appellation of Lime Kiln Valley

REFERENCE: Narrative description of approximate watersheds surrounding
Lime Kiln Valley.

NOTE: Convenient reference to follow narrative description is
U.S.G.S. Map entitled Gonzales Quadrangle-California
15 Minute Series (Topographic)

BEGINNING POINT: Start at the intersection of Thompson Creek and Pescadero Creek immediately North of Section 21 and follow in a counter clockwise manner in a Westerly direction on the Southern side of Thompson Creek for approximately 2/10 ths of a mile to a point approximately 1/10 th of a mile behind the Winkle Bunk House and Granary. Then turn Southerly along the hill South of the Winkle Bunk House and Granary and follow the ridge in a general South by Southeasterly direction through Section 21 and cross over into Section 28 atop a hill at elevation 1270 just left of the center of the Northern boundary of Section 28. Then follow in a South by South-westerly direction for approximately 1/2 mile to a hill at elevation 1375 located midway thru Section 28 just North of the jeep trail. Then continue along the same approximate heading into Section 33 to a hill at elevation 1847 located about a 1/10 th of a mile into Section 33. Continue in the same South by Southwesterly heading to a forestry fire road at approximately elevation 2000 and turn generally in a Westerly direction crossing into Section 32. Upon crossing into Section 32 the line follows the forestry fire road on the North side then approximately half way thru Section 32 cross to the South side of the forestry fire road and continue to follow the forestry fire road into Section 31 toward McPhails Peak. The line continues in a West by Southwesterly direction thru the South half of the South half of Section 31 and crosses into Section 6 at the same point as the forestry fire road. The line then follows an almost Southwesterly direction along the ridge into Section 1 to McPhails Peak. From McPhails Peak at elevation 3325, the watershed boundary line follows the Monterey County-San Benito County Boundary thru section 1, 2, 3 and in the middle of Section 3 crosses the Mt. Olds road from Thompson Valley. The line continues along the Monterey-San Benito County Boundaries into Section 34. At the intersection of the Western boundary of Section 34 and the Monterey-San Benito County boarder on a hill at elevation 2054 the watershed line heads approximately due North to a point about 2/10 ths of a mile North of the intersection point of Sections 34, 33, 28 and 27. Then the line proceeds in a North by Northeasterly direction thru the West half of Section 27 over a hill at elevation 2707 in the Northwest quarter of Section 27 then crosses the long gulch jeep road. The line continues in a counter clockwise manner and crosses the approximate mid point of the Northern boundary of Section 27 into Section 22 to the Southeastern twin peak of Mt. Harlan. Then the line turns abruptly in an Easterly direction and crosses into the Southwest quarter of Section 23. Then the watershed line dips slightly into a West by Southwesterly heading

along a ridge to a hill at elevation 2700 almost due South of the quarries located in the Northern half of Section 23. The line falls off the Easterly side of the hill at elevation 2768 and heads generally in a East by Northeasterly direction into the grass pastures located in the lower middle portions of Section 24, crosses the quarry access road at a point in the West half of the West half of Section 24 and continues thru the pasture areas in a Easterly direction. Then the line crosses into Section 19 at the same point the North fork access road crosses from Section 24 into 19 and the line then turns and heads in a North by Northeasterly direction along a ridge to a hill at elevation 2240 in Section 18. Then the line meanders over several hills and reaches hill elevation 1713 in the Southeast corner of the Southeast corner of Section 18. The line continues to meander in a general Easterly direction into Section 17 along the ridge to the Northwest of Harlan Winkle House. The line comes out of Section 17 and hits Naccarato Gate at the twin bridges at Pescadero Creek. The line then continues following Pescadero Creek going down stream to under Lime Kiln Road at a point 1/10 th of a mile North of the Northeast corner of Section 20 and then continues for approximately 6/10 ths of a mile along Pescadero Creek to the Beginning Point.

COMPILED BY: Robert Enz, State of California Engineering
Contractors License No. 257597

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June 7, 1980

Mr. Richard A. Mascolo
Chief, Research and Regulations Branch
Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms

SUBJECT: Request for Appellation of Lime Kiln Valley

REFERENCE: BATF letter of May 16, 1980

ATTENTION: Mr. Roger Bowling

Dear Mr. Mascolo:

In response to the Reference, please find enclosed the following:

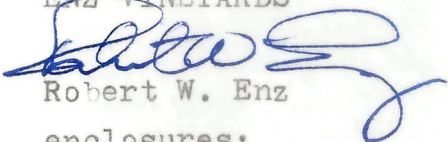
1. Narrative description of the approximate watershed surrounding Lime Kiln Valley.
2. Additional evidence relating to geographical climatic and geological conditions which make Lime Kiln Valley distinctive from surrounding areas.
3. Additional information written by the State of California Forestry Division relative to the unique climate of Lime Kiln Valley showing that Coulter Pines only grow in the Lime Kiln Valley watershed vicinity making it distinctive from surrounding areas.

We hope the foregoing additional documentation to our original request for an approved appellation submitted October 3, 1977, is sufficient for your final review.

Your help and assistance in this matter is greatly appreciated.

Very truly yours,

ENZ VINEYARDS


Robert W. Enz

enclosures:

A RESOLUTION OF THE COUNTY)
OF SAN BENITO RECOGNIZING)
THE LIME KILN VALLEY AREA)
AS AN ESTABLISHED GRAPE)
GROWING AREA SINCE 1887)

Resolution No. 77-123

WHEREAS, said area is now an established grape growing area; and

WHEREAS, evidence has been produced in the form of a Free Lance newspaper article attesting to the date of 1887.

NOW THEREFORE BE IT RESOLVED, by the Board of Supervisors of the County of San Benito, that said area known as the Lime Kiln Valley is and has been an established grape growing area since 1887.

The above resolution was passed this 6th day of September, 1977 by the following vote:

AYES:	SUPERVISORS:	Cernato, Kincaid, Sabbatini, Shore & Silva
NOES:	SUPERVISORS:	None
ABSENT:	SUPERVISORS:	None

Frank Sabbatini
Chairman of the Board of Supervisors
San Benito County

ATTEST: Donald A. Lowes
Clerk of said Board.

The foregoing document is a true and correct copy of the original on file in this office, and passed by the Board of Supervisors on:

Sept. 6, 1977

ATTEST: Sept. 29, 1977
DONALD A. LOWES County Clerk and ex-officio Clerk of the Board of Supervisors, San Benito County, Calif.

By Shirley Maddox Deputy

GEOLOGY AND ECONOMIC POSSIBILITIES OF THE LIMESTONE AND DOLOMITE DEPOSITS OF THE NORTHERN GABILAN RANGE, CALIFORNIA

By OLIVER E. BOWEN, JR. and CLIFFTON H. GRAY, JR.
Mining Geologists, California Division of Mines

Special Report 56
CALIFORNIA DIVISION OF MINES
FERRY BUILDING, SAN FRANCISCO, 1959

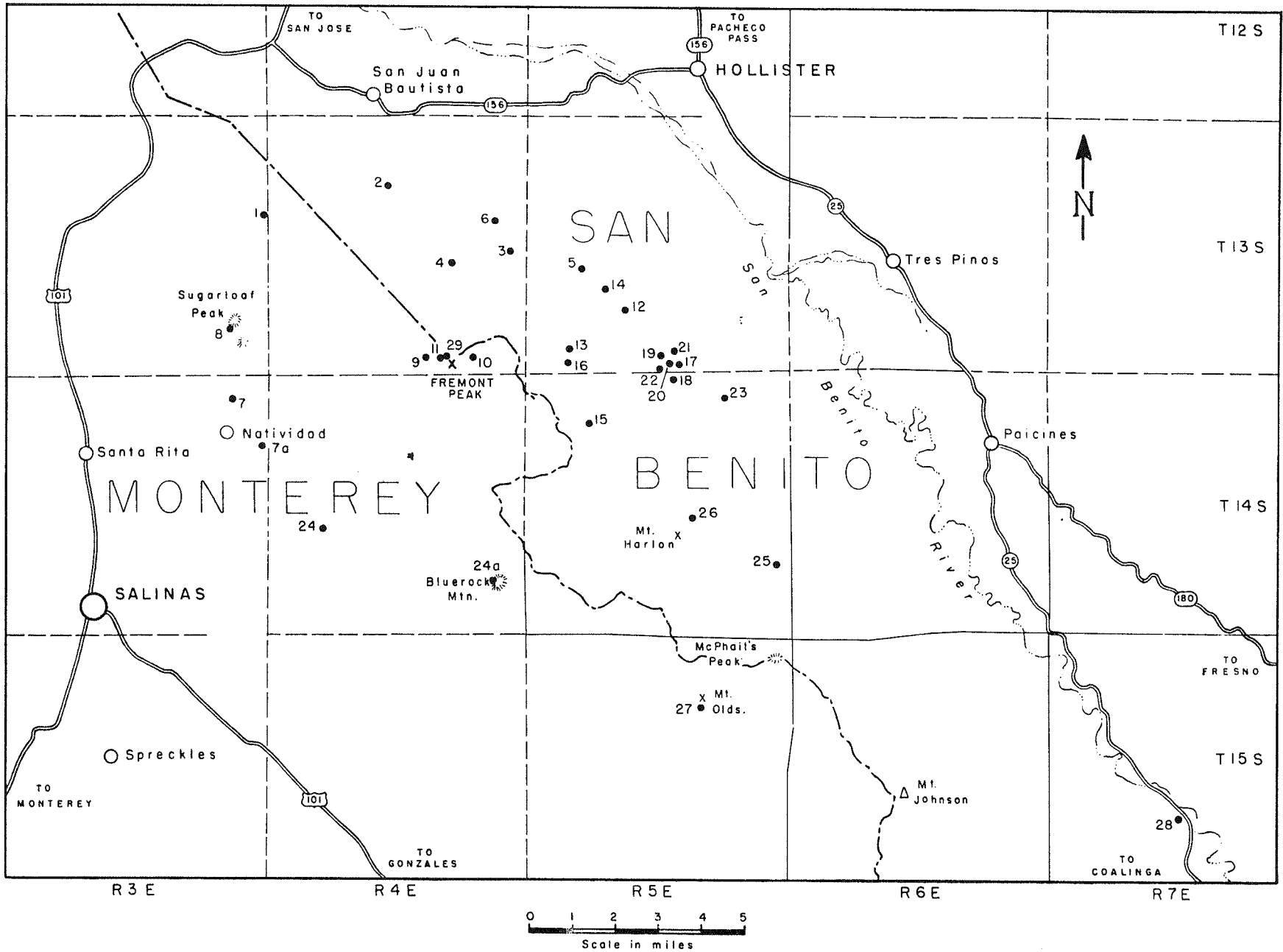


Figure 4. Map showing location of limestone and dolomite deposits, Fremont Peak area.

1959]

Westvaco (O'Hara Ranch) Deposit (23)

The quarries of the Westvaco deposit are a prominent landmark in the hills just southwest of Vineyard Winery. They were opened in 1947 by the present owners, the Westvaco Mineral Products Division of Food Machinery and Chemical Corporation, to supply the chemical plant at Newark. Since that time the quarries have produced roughly a million tons of high-grade dolomite. Prior to 1947 small tonnages of dolomite had been quarried from time to time—some as early as 1915.

White, medium crystalline dolomite occurs in a north-west-elongated mass roughly oval in plan. The mass is at least 1,800 feet long and 600 feet wide and has been explored to a depth of nearly 200 feet. It is enveloped in deeply weathered schist and granitic rock and granitic intrusions penetrate the dolomite in several places. The deposit is in or close to the San Andreas fault zone and the dolomite has been thoroughly crushed throughout the deposit. This lowers the cost of quarrying but raises the proportion of waste material. Several million tons of usable rock were proved. Further exploration was being done during the summer of 1958. According to the company the rock runs close to the theoretical composition for dolomite—slightly over 21 percent MgO. Iron oxide stains along the fracture surfaces are the only visible impurity. Logan (1947, p. 278) lists an analysis made by Smith-Emery Company from a sample collected toward the north end of the mass from a quarry then operated by A. E. Hamilton, which is probably representative of the deposit:

SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	Mn	CO ₂
.17	.36	.11	31.00	21.23	.006	47.30

Hartnell District (24)

The Hartnell district, which adjoins the Natividad district on the south end, lies 5 to 7 miles east of Salinas. The geologic map of C. L. Herold, made in 1934 as part of a graduate thesis at the University of California, delineates a large number of limestone pendants scattered over an area of 40 or 50 square miles. Most of these are on the J. C. Bardin ranch and Barnes ranches.

Pendants in the Hartnell district that were examined by the authors were found to consist either of intermingled dolomite and calcite rocks or of carbonate rocks intermingled with granitic rocks and with quartz-mica schist. Although small masses of white limestone and white dolomite of acceptable continuity and satisfactory commercial quality probably can be developed in the Hartnell district, it is doubtful if many of these exceed 200,000 tons; many would be much smaller. One small quarry on the old Hartnell College property once yielded limestone for construction purposes, but this has not been operated recently.

Bluerock Mountain-Quail Creek Deposits (24a)

These are on the Barnes ranch (formerly the Norvel and Silacci properties) on Old Stage Road 8 miles south-east of Salinas and 3 to 6 miles northeast of Chualar. The Bluerock Mountain deposit lies on the west slopes of the mountain on rugged topography. It is an oval mass having a slight east elongation and underlies most of the SW $\frac{1}{4}$ sec. 25, T. 14S., R. 4E., M.D. It has not yet been sampled or otherwise explored. Most of the mass appears

to be medium crystalline, blue-gray limestone. Reserves probably aggregate many millions of tons.

The Quail Creek deposit was under development in May, 1959, by Barnes Construction Company of San Marino, California, as a source of roofing granules and industrial limestone. A small quarry at the northwest end of the deposit was worked as a source of material for lime early in the 1900's. The main mass is a sheet-like pendant set on edge striking N. 65-75° W. and dipping 22-45° SW. It forms a blanket (dip slope) on the west slope of the ridge. The thickness of the sheet varies from 120 feet in the center of the mass to less than 50 feet at the northwest end. The limestone is enveloped in granitic rock and schist and granite dikes penetrate the mass in numerous places. The northwest end of the deposit consists of mixed limestone and dolomite but the southeasterly two-thirds appears to be principally limestone. Most of the deposit has been stripped of its thin overburden of soil and caliche and has been thoroughly explored by trenching, rotary drilling and diamond-drilling. More than 2,000,000 tons of rock have been blocked out, but because of granitic intrusions and discoloration patches, recovery may run less than 50%. The CaCO₃ content may be expected to vary from 96% to less than 60%. The proportion of high-grade to marginal and sub-marginal-grade rock has not been determined.

Mount Harlan-McPhails Peak District

Limestone masses of many different sizes are found in the Mount Harlan vicinity west of Cienega Valley between Pescadero Canyon and McPhails Peak. A number of these have long been held by commercial firms as potential sources of commercial limestone, and ruins of several lime kilns operated prior to 1910 are found in the district. As the deposits are more remotely situated from markets and from rail transportation than those to the north and west, there has been less incentive to develop them. Dolomite deposits of notable size have thus far not been found. The pure white crystalline deposits are the most likely to be used in the near future. None of the limestone deposits are believed to be large enough to support a cement plant of comparable size to most operating in California.

Cowell-Thompson Creek Deposit (25)

For more than 50 years the Henry Cowell Lime and Cement Company held this deposit and it once supported a bank of large lime kilns. Deposit and kilns are conspicuous landmarks on the north side of Thompson Creek Canyon, 3 miles by road southwest of Cienega School. The property is administered by the Henry Cowell Trust Estate, 2 Market Street, San Francisco, California.

The deposit is a thin, sheet-like pendant, set on edge, 60 to 100 feet wide and nearly half a mile long. It crops out over very steep topography, between granite and schist wall rocks. The long axis of the mass trends almost due west and the strata dip very steeply north. Granite sheets and quartz-mica schist interbeds are found at numerous places within the limestone. Because of the thinness and attitude of the limestone mass, much of it would have to be mined underground. Dolomite was not observed in the deposit and most of the rock appears to be medium to coarsely crystalline white or blue-gray limestone low in impurities. Analyses are not available

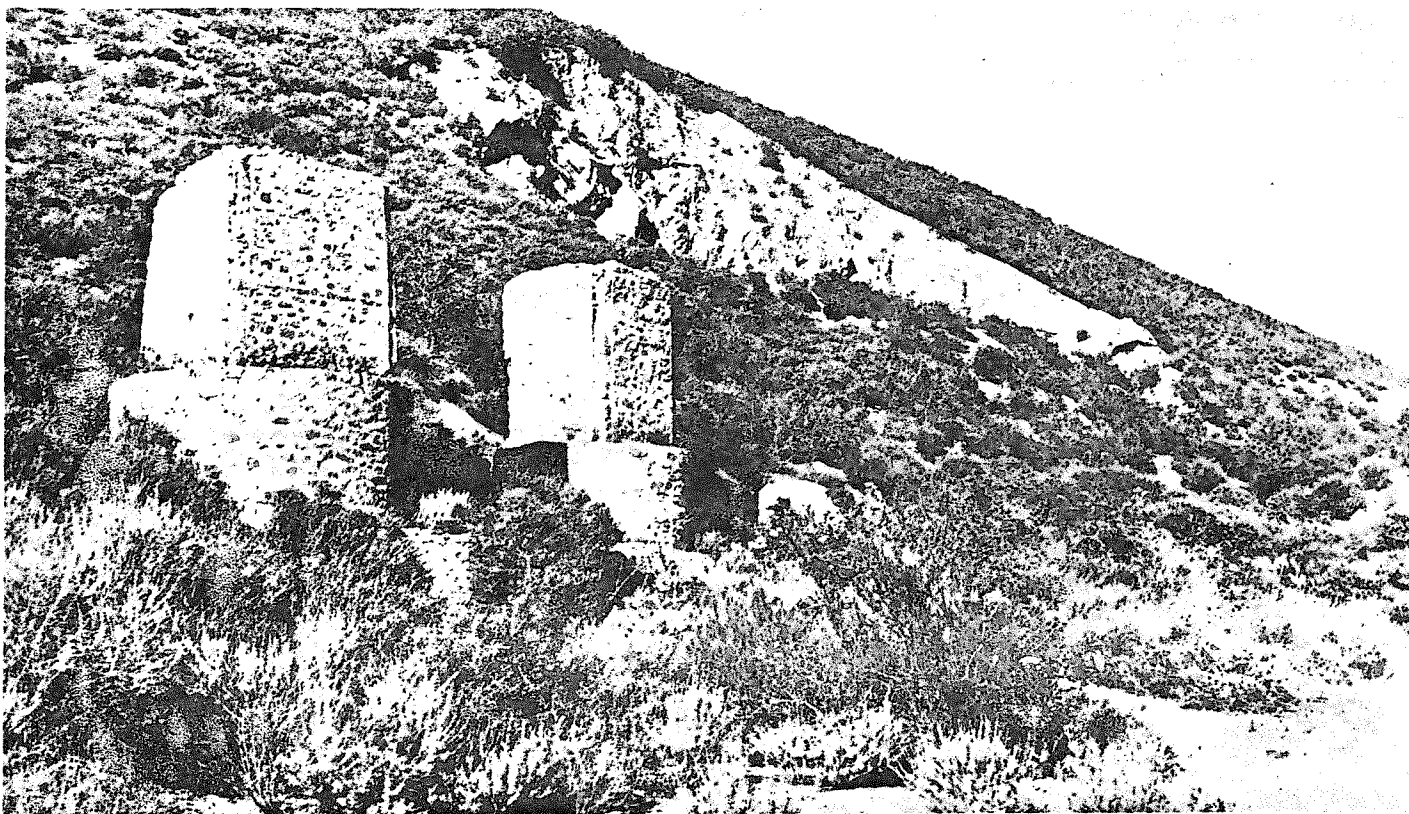


PHOTO 33. Old lime kilns and quarry at the Cowell Thompson Creek deposit in the Mt. Harlan district about 16 miles by road south of Hollister.

The pendant contains several millions tons of limestone but selective mining would be necessary to maintain a uniform grade of rock.

Hamilton, Harlan, Mayries, and McPhail Deposits (26)

The Hamilton, Harlan, Mayries, and McPhail are adjoining properties clustered together on and to the northeast of Mount Harlan. They are in sections 13, 14, 22, 23, and 24, T. 14 S., R. 6 E., M.D. The disposition of the property boundaries is not known to the authors. A good dirt road connects with the properties by way of the Thompson Creek and Cienega Valley roads. A. E. Hamilton, Box 621, Hollister, is reported to have done development work at one of the deposits during 1956.

The most promising deposit, which consists of pure white, coarsely crystalline limestone without visible impurities or serious discoloration, lies close to the boundary common to the SW $\frac{1}{4}$ sec. 14 and the NW $\frac{1}{4}$ sec. 23. The rock crops out on a hill, occupying 5 or 10 acres, but the exact size and shape of the mass is not known to the authors. A small quarry, from which a few thousand tons of material has been removed, evidently supplied the bank of kilns which lie close to the Harlan Creek road northwest of the quarry. The extent of outcrops suggests that there may be half a million to a million tons of limestone in the mass, but it would have to be selectively mined because of the prevalence of granitic intrusions. This deposit is attractive as a source of high-calcium, pure white limestone for glass and for specialty products.

The Hamilton deposit, on the south slope of Mount Harlan, is a lenticular, east-striking, south-dipping mass

about 1,000 by 3,000 feet as seen in plan. It may contain as much as 20,000,000 tons of carbonate rock. The following mean analysis is the composite of 33 samples taken at 5-foot intervals perpendicular to the strike of the main part of the mass.

CaO	52.22
MgO	2.60
SiO ₂	0.75
R ₂ O ₃	0.64
Loss on ignition	44.79

Logan (1947) lists an analysis of a sample taken from the Hamilton property and analyzed by Smith-Emery Company of Los Angeles:

SiO ₂	0.14
Al ₂ O ₃	0.10
Fe ₂ O ₃	0.02
CaO	54.19
MgO	0.84
Loss on ignition	44.34
Calculated as CaCO ₃	96.72

There are other masses of white and blue-gray limestone in the five sections listed above, but most of these are undeveloped and untested.

Westphal Ranch Deposits (27)

These deposits are on the south slopes of Mt. Olds 9 miles east of Chualar in secs. 10 and 11, T. 15 S., R. 5 E., M.D. They are owned by the Herald Ranch, a trust estate, Herb G. Meyer, 16 San Pedro St., Salinas, California, manager. The beds are sinuous but have a general east strike and a steep south dip. The carbonate rocks are

DEPARTMENT OF FORESTRY

2221 Garden Road
Monterey, CA 93940
(408) 649-2815



5M

June 5, 1980

Mr. Robert Enz
1781 Lime Kiln Road
Hollister, CA 95023

Dear Mr. Enz:

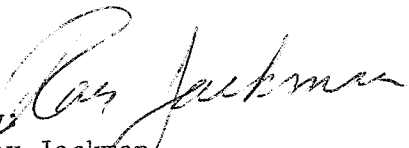
As requested by State Forest Ranger Dick Gilbert I am glad to supply you with information on Coulter pine.

I am enclosing some materials from a U. S. Forest Service Publication on Coulter pine. You will note under description of the range of the tree, that the Gabilan Range is the first mentioned in "CALIFORNIA". Coulter pine is the dominant vegetation of the Gabilan Range and as you know, grows in several other areas of the county including a large stand near New Idria. Ranger Gilbert tells me you have some trees on your property.

The Coulter pine would certainly be an appropriate symbol for San Benito County as it is the dominant vegetation of many of the county's high mountains. The tree is a staunch survivor in harsh conditions and is the only commercial conifer in the state that can grow in areas with 30" or less of annual rainfall. The cones of the tree are the heaviest of any pine in the world. The dark green pine tree should serve well as a unique and symbolic symbol representing a product of San Benito County.

Sincerely,

JOHN HASTINGS
CHIEF

By: 
Ray Jackman
Resource Manager

jmb

Forest Trees of the Pacific Slope

By
GEORGE B. SUDWORTH
Dendrologist



U.S. Department of Agriculture
Forest Service

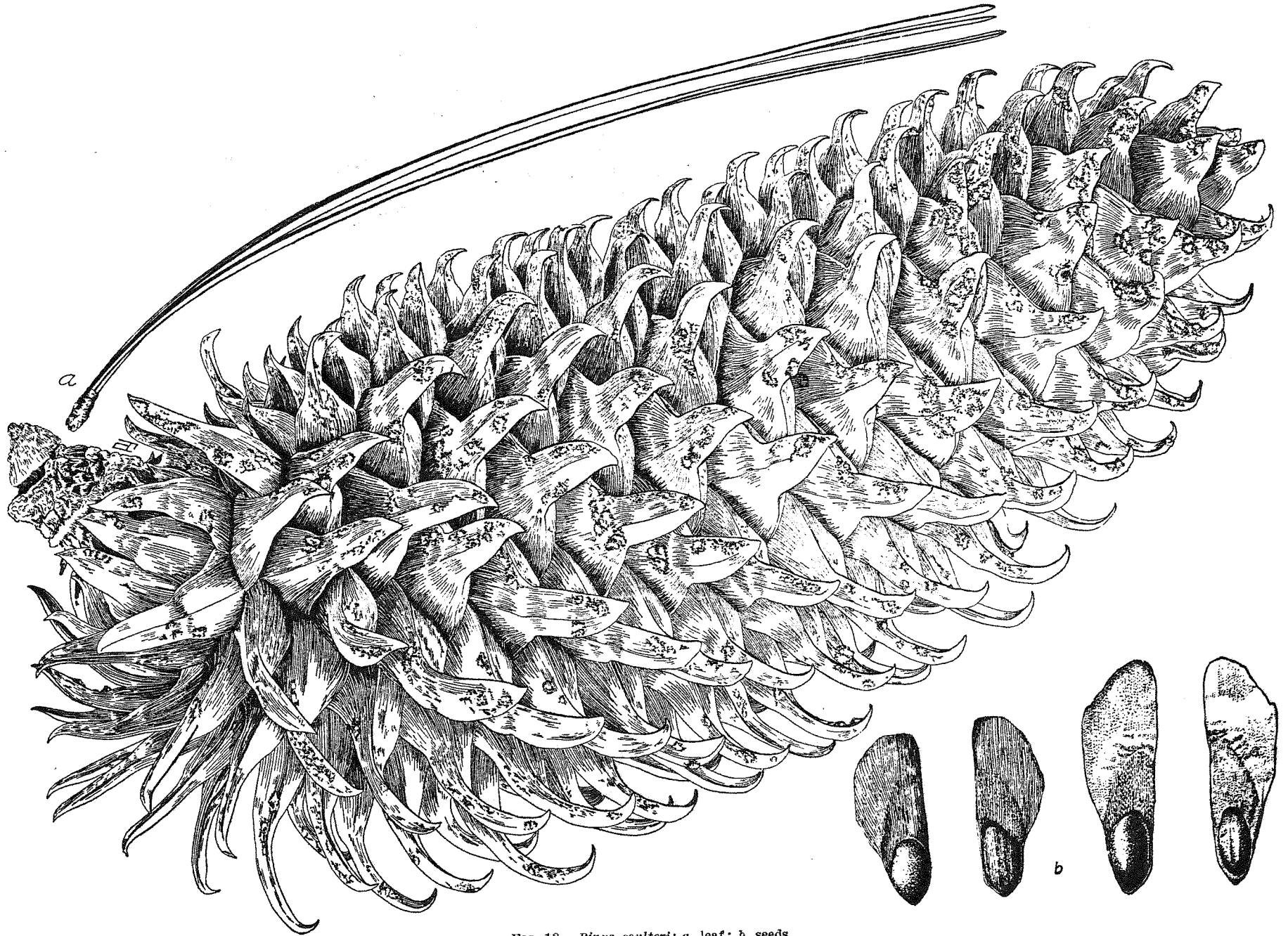


FIG. 18.—*Pinus coulteri*: a, leaf; b, seeds.

Coulter Pine; Bigcone Pine.

Pinus coulteri Lambert.

DISTINGUISHING CHARACTERISTICS.

Although a smaller tree, Coulter pine remotely resembles in general appearance young or middle-aged yellow pine, from which, however, its stiff, much heavier foliage, stouter twigs, and huge cones distinguish it at once. Ordinarily it is from 40 to 60 feet high, with an irregularly open, heavy-branched crown. The clear trunk is short (from 10 to 15 feet), and from 18 to 30 inches in diameter. Occasionally trees reach a height of nearly 75 feet and a diameter of 3½ feet. The big lower branches are long, bending downward, often to the ground, and with an upward curve at their ends; immense bunches of erect, stiff leaves conceal their extremities. The bark is early roughly broken, even on young trees. That of old trunks is roughly furrowed and ridged and of a very dark or blackish brown; the ridges are wide, roughly scaly, and irregularly connected with one another. Leaves, 3 in a bundle (fig. 18, a), are from 6½ to about 12 inches long; as a rule, about 9 inches. Many of the leaves begin falling during the third summer, but they persist until the fourth summer. They are a deep bluish-green. The horribly armed, extremely heavy cones (fig. 18) distinguish this pine from all of its relatives and associates. Young trees (from 20 to 30 years old) bear cones. The cones mature by August of the second summer and are from 9 to about 14 inches long. During October the cones open partly and continue to shed a few of their seed for several months afterward. Some of the cones remain attached to the branches for five to six or more years. The ends of the cone scales and their sharp, strong points are yellowish clay-brown; the inner portions of the scales are dark purple-brown. Seeds (fig. 18, b) and their short narrow wings are a deep chocolate brown, the latter often paler. Seed leaves, 9 to 12, sometimes 13 or 14. Wood, light, soft, coarse grained, and reddish brown; suitable for second-class lumber, but rarely cut. A comparatively short-lived tree.

LONGEVITY.—Trees from 20 to 26 inches in diameter are from 110 to 125 years old. It probably does not reach a greater age than 200 years. Further study of its longevity is required.

RANGE.

Southern California (coast and cross ranges) into northern Lower California. Only on inner coast range from Monte Diablo to Monterey Bay, south of which on western coast ranges also, south to San Diego County; generally between 3,000 and 6,000 feet elevation.

CALIFORNIA.—Monte Diablo in places to crest of main ridge. Fremont Peak at north end Gablian Range (between Salinas and San Benito rivers) and on higher ridges of this range a few miles south of Fremont Peak; formerly over whole summit of range. Santa Lucia mountains at 550 to 4,600; Santa Lucia Peak nearly to summit and west in upper Arroyo Seco canyon, divide between head of latter and Milpitas Creek, Willow Creek (tributary Arroyo Seco) from mouth to head of Tassajara Creek, Bear Valley, Carmel River, Indian Creek, coast ridge near Sur River (above 3,600 feet), near Cone Peak (southwest Santa Lucia Peak) from 2,500 to 4,000 feet, but not in Pine valley. Summit of ridge west of Carisso Plains (San Luis Obispo County) at 1,500 to 2,750 feet. Santa Barbara National Forest on summits and north slopes from Zaca Lake to Mansana Creek (tributary Siquoc River), on upper Siquoc River Basin, and on Big Pine Mountain and Mount Medulce in San Rafael Mountains, at 1,500 to 2,700 feet, and on summits of Santa Ynez Mountains; noted on Rancho Nuevo Creek. San Gabriel Mountains up to 6,000 feet in vicinity of Mount Gleason, on Tujunga canyon at 3,300 to 4,000 feet, at head of Alder Creek at 5,000 feet, in vicinity of Waterman Mountain at 5,500 to 6,000 feet, and on Strawberry Peak at 5,000 to 6,000 feet. Common in San Bernardino mountains at 3,900 to 6,000 feet, sometimes down to 3,500 and up to 6,700 feet, limited to

LIME
KILN
VALLEY

Deep Creek and Grass valley drainages, Bear Valley (6,700 feet), south side Little Bear valley, Santa Ana and City Creek canyons, but not west of Strawberry Ridge nor east of Coxe Ranch. Common in San Jacinto Mountains at 4,500 to 6,500 feet, sometimes down to 3,500 feet and up to 7,000 feet or 7,500, as above Strawberry valley; only on south and west sides of mountains. Santa Ana Range only at head of Trabuco Canyon and southwest side Santiago Peak nearly to summit. Palomar or Smith Mountain (southwest of San Jacinto Mountains) only below Iron Spring. Common in Balkan Mountains to the south and in northern part of Cuyamaca Mountains at 4,500 to 7,000, and sometimes down to 4,000 feet; noted near Julian at 4,100 feet. Laguna Mountains (north of Mexican line), only on crest of east side.

LOWER CALIFORNIA.—Not within some miles of international boundary, but farther south in Hanson Laguna Range above 4,000 feet and south to Mount San Pedro Martir at 8,000 to highest summits (11,000 feet).

OCCURRENCE.

On dry, warm slopes and ridges, as well as sometimes on more moist, sheltered north slopes in chaparral. In dry gravelly loam soils.

Never in pure forests. At lower altitudes, singly or in groups on summits, in sheltered ravines, and hill coves; higher up (from 3,500 to 5,000 feet), with incense cedar, yellow pine, big-cone spruce, and oaks; sugar pine and white fir appear with it between 5,500 and 7,000 feet, but here Coulter pine soon thins out and disappears.

CLIMATIC CONDITIONS.—Temperature on coastal mountain slopes 25° to 35° F. and from 15° to 100° F. on inland mountains. Humidity high near coast, where cloudy, foggy days are frequent, and low toward inland, or eastern limit of range. Precipitation, from 20 to 30 inches, and chiefly rain. In southern inland mountains it sometimes endures almost arid conditions, with long drought and rapid evaporation during summer.

TOLERANCE.—Demands light except in youth, when it endures shade of chaparral.

REPRODUCTION.—Persistent, periodic seeder, bearing cones often when 10 to 15 feet high, and usually in three-year cycles. Germination of seed only moderate, and vitality (out of cones) transient. Heavy seeds; ripe in August, shed very slowly, sometimes not until or after following January; they commonly fall close to seed trees. Reproduction, never dense, is usually scattered and on exposed mineral soil and where there is little humus.

Monterey Pine.

Pinus radiata Don.

DISTINGUISHING CHARACTERISTICS.

Monterey pine is unique in its isolated sea-coast habitat, where, according to exposure and density of stand, it has a comparatively tall, clean trunk topped by a conspicuously open, irregularly long, and large branched crown. Old trees are apt to have flattish crowns, while younger trees usually have narrow, rounded crowns. The dense foliage is brilliant deep grass-green. Trees from 60 to 90 feet in height and from 16 to 24 inches in diameter are common, but a height of nearly a hundred feet and a diameter of 3½ or 4 feet, and occasionally 5 or 6 feet, is sometimes attained. Bark of adult trees is a deep reddish or blackish brown. It is broadly ridged and deeply furrowed, the flat ridges cut into close, distinct plates. Leaves of a season's growth, which are slender and about 4½ to 6 inches long, remain on the tree until the third year. They occur chiefly 3 in a bundle, with occasional clusters of two on the same branch or tree (fig. 19). A form of this tree (*P. radiata* var. (*b*) *binnata* Lemmon (1895) = *P. insignis* var. *binnata* Wats., 1876) growing on the California coast islands Santa Cruz and Santa Rosa, has most of its leaves 2 in a bundle, but not infrequently bundles of 3 on the same tree. Otherwise, the characters of this form are the same as those of the mainland tree. Other North American pines (*Pinus echinata*) exhibit similar variations, which, like those of the present tree, are deemed insufficient to establish varieties. The cones (figs.

SOIL and CAPABILITY MAP SUMMARY

Cooperator: R. EnzDate: March 1980

Land Capability Unit	Symbol on Map	Soil Name	Effective Depth	Soil Profile		A.W.C.* Inches	Average Slope in %	Erosion Status	Suitable Land Uses or Crops	Limiting Factors or Remarks
				Texture						
				Surface	Subsoil					
VIIe-4	CgG2	Cienega gravelly sandy loam, eroded	10- 18"	0-18" pale brown gravelly sandy loam	weather- ed granite	2-3"	30- 75	severe to very severe	watershed, wildlife, recreation, some limited grazing	excessively drained; shallow limiting root penetration and water movement; low fertility. Included with this soil are a few small areas of limestone or marble west of Cienega Road
VIIIIs-1	CgG3	Cienega gravelly sandy loam severely eroded	8- 18"	" "	" "	1-2"	15- 75	"	" "	" "
IIIe-1	HfC	Hanford loam	60"	0-20" grayish brown loam	20-40" strati- fied coarse loamy sand & sandy loam 40"+ pale brown coarse loamy sand	7.5- 8.5"	2-9	slight to medium	Irrigated and dryland grapes, dryland grain, incidental pasture	Coarse alluvial parent material. Well drained; slow to medium runoff; stratified with buried horizons.

*A.W.C. = Available Water Holding Capacity for the entire soil profile

SOIL and CAPABILITY MAP SUMMARY

Cooperator: R. Enz

Date: March 1980

Land Capability Unit	Symbol on Map	Soil Name	Effective Depth	Soil Profile		A.W.C.* Inches	Average Slope in %	Erosion Status	Suitable Land Uses or Crops	Limiting Factors or Remarks
				Texture						
				Surface	Subsoil					
IIw-2	Pc	Pacheco loam	50"	0-24" grayish brown to dark gray loam	24-40" loam 40"+ stratified loam to clay loam with lenses of loamy sand and gravel	8-10	0-2	slight to none	Irrigated walnuts, sugar beets, apricots, tomatoes, alfalfa, dry land grain and incidental pasture	Moderate permeability; Poorly drained, Moderate fertility; very slow - ponded runoff; Occupies low flood plains and is subject to occasional flooding and deposition; most areas have a seasonally high water table 36-60" deep; some areas are moderate to severely alkali.

*A.W.C. - Available Water Holding Capacity for the entire soil profile

SOIL and CAPABILITY MAP SUMMARY

Cooperator: R. Enz

Date: March 1980

Land Capability Unit	Symbol on Map	Soil Name	Effective Depth	Soil Profile			Average Slope in %	Erosion Status	Suitable Land Uses or Crops	Limiting Factors or Remarks
				Texture		A.W.C.* Inches				
				Surface	Subsoil					
Ive-1	SkD	Sheridan coarse sandy loam	36-48"	0-36" dark grayish brown coarse sandy loam	36"+ weathered granite	5-7	9-15	Moderate	Dryland pasture, wildlife, watersheds, recreation	Medium runoff; moderate fertility; Granite parent material but there is some fine grained igneous. In small areas, the underlying rock is limestone and marble over granite. This soil is found generally west of Cienega Road and NW of Limekil
Vie-4	SkE	Sheridan coarse sandy loam	"	"	"	"	15-30	Moderate to severe	"	"
Vie-4	SkE2	Sheridan coarse sandy loam, eroded	24-36"	"	"	3-5	15-30	severe	"	low fertility, same as above information

*A.W.C. - Available Water Holding Capacity for the entire soil profile

SOIL and CAPABILITY EVALUATION SUMMARY

Cooperator: Edwin Ray

Date: March 1960

Land Capability Unit	Symbol on Map	Soil Name	Effective Depth	Soil Profile			Average Slope in %	Erosion Status	Suitable Land Uses or Crops	Limiting Factor or Remarks
				Texture		A.W.C.* Inches				
				Surface	Subsoil					
VIIe4 None	PaC	Dark Sand	60"	Coarse sandy loam	Very fine	6-8	2-5	Slight to moderate	Irrigated: Vineyard Valuable Alfalfa	Lowest soil in cap. evaluation Sandy soil Low to moderate fertility needs frequent fertilizer Some rocks
VIIIe4 Chertstone (concretion to granitic)	Sa	Sandy Alluvial loam	60"	Coarse sand	Coarse granule	4-6	low	High erosion on disposition	Irrigated range watered waterway Wildlife Recreation Pasture	Very erill area low fertility excessive drainage rapid erosion Highly erodible erosion signs in field not suitable for grazing without
VIIIe4	S2S2	Sandy loam	18-24"	Coarse sandy loam	Coarse sandy loam	2-4	10-25	Very erill	Irrigated range watered Wildlife Recreation	Low fertility Very erill type low chert Highly erill after fertilizer soil low fertility
VIIIe4	S2S2	Sandy loam	18-30"	Coarse sandy loam	Coarse sandy loam	1-5	20-25	Very erill	Same as above	
VIIIe4	R2	Very erill loam	Very erill	Very erill	Very erill			Very erill	Very erill	

*A.W.C. - Available Water Holding Capacity for the entire soil profile