Petition to Establish Gabilan Mountains as an American Viticultural Area

May 16, 2018


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ATTN: AVA Program
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## RE: Petition to Establish Gabilan Mountains Viticultural Area

The following petitions the Alcohol and Tobacco Tax and Trade Bureau (TTB) to establish the grape growing region known as "Gabilan Mountains" as described in the Code of Federal Regulations (CFR) at 27 CFR part 9 and a name and delineated boundary as established in part 9 of the regulations.

## Introduction

The Gabilan Mountain Range is a small mountain range separating the Salinas and San Benito valleys. Monterey and San Benito county lines run down the center of the range, making it a natural boundary in place to divide counties. There are significant factors that led to the filing of this petition, most notably the microclimate created by the significant elevation difference between the mountains and the valley floors. The proposed "Gabilan Mountains" AVA (for the purposes of this petition will be referenced as "AVA") is approximately 98,000 acres and stretches 27 miles northwest-southeast at its longest point and and 10 miles east-west. The AVA ecompasses Mount Harlan and Chalone AVAs without intersecting at any points (Figure 1). The proposed viticultural area respects the uniqueness of Chalone and Mount Harlan AVA, but also reflects the distinct viticultural environment of the mountain range as a whole relative to the surrounding areas like Monterey, Lime Kiln Valley, Cienega Valley and other valley floor AVAs. Reaching heights of $3,450 \mathrm{ft}$ at Fremont Peak, the AVA boundary is primarily elevation defined at 1500 ft throughout the range with a few exceptions. Although it is very much contiguous with the geology, elevation and climate within the Gabilan Range, Pinnacles National Park has been excluded from the AVA as it is not lawful to grow commercial wine grapes on
federal or state land. With vines being planted as early as the 1890's, the Gabilan Mountains region has slowly attracted those daring enough to plant in the elevated wilderness and is quietly becoming California's Burgundy.

Currently, there are 4 bonded wineries and 6 commercial grape growing operations within the proposed AVA. Bonded wineries include Calera Wine Company, Chalone Vineyard, Brosseau Vineyard and Michaud Vineyard. The commercial grape growing operations include Calera Wine Company, Chalone Vineyard, Brosseau Vineyard, Michaud Vineyard, Rodnick Farm, and Coastview Vineyard. Within the AVA there are a total of 389 acres of planted vines among the vineyards as follows:

North End (Mt. Harlan area):

- Calera Wine Company (67 acres)

Central Gabilan Range:

- Coastview Vineyard (25.8 acres)

South End (Chalone AVA):

- Chalone Vineyard (240.68 acres)
- Michaud Vineyard (28.85 acres)
- Brosseau Vineyard (35.96 acres)
- Rodnick Farm Vineyard (19.8 acres)

Total Acreage of planted vines: 389.24 acres

## I. Narrative

## A. Name evidence:

The Gabilan Mountain Range is a historic range separating Monterey and San Benito Counties. The name was originally established in 1848 in spanish meaning 'Sparrow Hawk' given the large population of red tailed hawks that live in the ecosystem. ${ }^{1}$ It is labeled on all relevant USGS maps under 'Gabilan Range' and has its own identification number in the USGS Geographic Names Information System. ${ }^{2}$ Additionally, Nobel Prize winner and American Author, John Steinbeck, even wrote of the Gabilan Range in his classic, East of Eden, and contrasted them against the Santa Lucia mountain range to the west:

[^0]"I remember that the Gabilan Mountains to the east of the [Salinas] valley were light gay mountains full of sun and loveliness and a kind of invitation, so that you wanted to climb into their warm foothills almost as you want to climb into the lap of a beloved mother. They were beckoning mountains with a brown grass love. The Santa Lucias stood up against the sky to the west and kept the valley from the open sea, and they were dark and brooding-unfriendly and dangerous. I always found in myself a dread of the west and love of east. ${ }^{\prime \prime 3}$

Variations of the name 'Gabilan Mountains' include different spellings shown in the Decision Card made in 1904 from the U.S. Board on Geographic Names (Exhibit 1) along with other variants including: Gavilan Mountains, Gavilan Range, Sierra De Gavilan, and Sierra Gabilan. ${ }^{4}$ Though there is a great and romanticised history to these mountains, even today they are largely an untapped potential. The wilderness and mountain terrain requires a certain level of tenacity to take on the challenge of unlocking the terroir hidden in the oak dotted hills.

Currently the Gabilan Mountains name is well recognized across an array of different mediums. There is a species of salamanders known as the 'Gabilan Mountain Slender Salamander' that is only found within the proposed AVA and a few other areas. ${ }^{5}$ In an online residential real estate article, there is a listing for "approximately 165 acres in the Gabilan Mountains". ${ }^{6}$ Additionally, the California State Parks website describes San Juan Bautista State Park that commemorates an 1846 battle at Fremont Peak, located in the proposed AVA, "in the nearby Gabilan Mountains". ${ }^{7}$ Lastly a website locating hiking trails for hikers points outdoor goers to the "Trails of the Gabilan Mountain." Though the name is officially represented on USGS maps as the 'Gabilan Range', it is more commonly recognized among the general populous as the 'Gabilan Mountains' when referring to the area which would aid wine consumers in locating the area given that name for the proposed AVA.

## B. Boundary Evidence:

[^1]The Gabilan Mountains viticultural area is located within Monterey and San Benito counties, California. Within the boundary description that follows, the viticultural area starts at the 1500 ft elevation (contour line) and encompasses all areas at or above 1500 ft . The foothills of the range also serve as a quasi-boundary as the tops near the 1500 ft elevation line. The elevation defined boundary significantly separates the climate and soil types of alluvial fill that run off the mountains and land in the valley below. In agreement with Monterey AVAs filing, the Gabilan Mountains are also used to frame the valley AVA as a natural boundary.

- Begin at the west edge of the USGS Hollister quadrangle 7.5 minute map, 2015, at the 33,73 square mark and follow the topo contour line at 1500 ft .
- South of the San Andreas fault label, cross Azalea Canyon in a straight line until the 1500 ft contour is met and continue till till the edge of the map in cross section 41,69 .
- Continue south on the USGS Mount Harlan Quadrangle map, 2015 and follow the 1500 ft contour.
- Leave the contour line to cross Pescadero Creek and continue on contour bordering the Mount Harlan AVA marked in purple until it deviates back around to 1500 ft .
- The boundary reaches the edge of the east side of the map in the 45,64 square
- Proceed southwest on the contour line beginning in the 45,64 square of the USGS Paicines Quadrangle map, 2015 deviating only to not intersect with Mount Harlan AVA Boundary.
- Follow the meandering contour in a southeast direction until it departs to cross Bear Canyon and joins back ending in the southeast comer of the map.
- Continue from the farthest northwest comer of the USGS Bickmore Canyon Quadrangle map, 2015 in a straight line going southeast until the 1500 ft contour is met again.
- Follow the contour and depart to cross Willow Creek.
- The boundary then parallels Highway 25 for approximately 4.5 miles.
- Depart HWY 25 and head due west as the Pinnacles National Park intersects HWY 25.
- Follow the Pinnacles National Park border all the way till it reaches the end of the south edge of the map in the 58,40 square.
- Continue southward now on the USGS North Chalone Peak Quadrangle following the western border of Pinnacles National Park.
- Turn off the border in the lower comer of the 60,33 square and head northwest until the 1500 ft contour is met again.
- Follow the meandering contour going west until it exits the map in the 56,34 square.
- Begin the on the USGS Soledad Quadrangle in the 56,34 square heading straight west along the border of the Chalone AVA boundary marked in blue.
- Break off the Chalone AVA border to continue on the 1500 ft contour line until it joins the Chalone AVA again.
- Follow the the Chalone AVA boundary west, north, and west again and break back to the contour in the 51,37 square.
- Proceed up the 1500 ft contour going north until it reaches the edge of the map in the 50,41 square.
- Continue on the contour line in the USGS Mount Johnson Quadrangle map, 2015 and depart to cross McCoy Creek in Ben Graves Canyon in the 47,46 square
- Rejoin the contour and follow in a northwest direction until the west edge of the map is reached in the 45,49 square.
- Now in the USGS Gonzales Quadrangle map, 2015 begin on the east edge in the 45,49 square and follow the 1500 ft contour west and north.
- Break the contour to cross Muddy Creek, and Chualar Creek in Espinosa Canyon and rejoin the contour at the closest point.
- Follow the meandering northwest 1500 ft contour as it leaves the north edge of the map in the 42,54 square.
- Continuing into the USGS Mount Harlan Quadrangle map, 2015 in the 42,54 square head northwest following the winding 1500 ft topo contour line.
- Cross the creek in the 34,61 square and rejoin the contour line exiting the west edge of the map through the 34,62 square.
- Proceed along the contour from the $33,61 / 62$ line meandering north and west up the USGS Natividad Quadrangle map, 2015.
- Break off of the contour to cross the Gabilan creek in the 31,66 square and rejoining the contour at the nearest point.
- Follow the contour due north to exit the map at the 30,68 square
- Proceed with the 1500 ft contour beginning in the 30,68 square in the south end of the USGS San Juan Bautista Quadrangle map, 2015.
- Follow the meandering contour as it circles north and east crossing the Monterey/San benito County line in the 31,71 square of the map.
- Continue along the 1500 ft contour till it exits the east side of the map at the 33,73 square reaching the starting point.


## II. Distinguishing Features

## A. Climate and Elevation:

The ocean-influenced microclimate of the Gabilan range is truly unique to its surrounding counterparts. Less than 12 miles away from the coastline at its closest point and 33 miles at its furthest point, the cool air and northwest winds from the pacific ocean flow to the Salinas Valley and onto the range. The AVA contains significantly higher elevations than all surrounding areas to the north which distinguishes this region apart from neighboring AVAs.

Comparing average elevation ${ }^{9}$ for neighboring AVA's below:
Gabilan Mountains AVA: $2,370 \mathrm{ft}$

Eastern AVAs
Lime Kiln Valley AVA: 880 ft
Cienega Valley AVA: $1,105 \mathrm{ft}$
Paicines AVA: 778 ft
San Benito AVA: 881 ft

Southern AVAs
Arroyo Seco AVA: 331 ft

## Western AVAs

Monterey AVA: 480 ft
Santa Lucia Highlands: 512 ft

## Northern AVAs:

Santa Clara Valley AVA: 345 ft

The elevation has a direct impact on on the climate and produces attractive attributes for growing premium wine grapes. For instance, the fog and marine layer coming in from the coast sits beneath the range in the valley floor (figure 2) giving the range a cool air climate without the humidity that comes with the fog and low lying clouds. This significantly reduces mildew pressure allowing growers to use less fungicides and pursue organic and sustainable practices during the growing seasons, thus leading to a higher quality grape and one that represents the terroir to a high degree.

Fog is a significant factor that affects the a climate for its suitability and effects on growing wine grapes. The proposed AVA averages less than 2.5 hours of fog and low clouds per day annually. Comparatively to the south King City averages 7 hours, to the west Salinas averages 9 hours, to the north Hollister averages 9 hours and to the east Paicines averages less than 2 hours daily. ${ }^{10}$ This phenomenon carries two significant effects in distinguishing the AVA against surrounding areas. First, there is a high degree of mildew pressure with fog as vines sit in $75-100 \%$ humidity. Secondly this fog layer acts as a blanket insulating the temperatures of the valley floors in the early morning raising the average temperature compared to the high elevation mountains. These factors appreciably benefit the viticultural area offering a more arid climate, and direct sunlight to provide photosynthesis to the vines for proper maturation.

Annual rainfall in the Gabilan Mountains is 17.29 inches garnishing more all surrounding areas: the north (Hollister) 14.19 inches, the west (Salinas) 12.83 inches, the south (King City)

[^2]12.06 inches and the east (Paicines) 16.06 inches (Exhibit 3). The AVA largely collects rainfall in the winter and late fall ( 12.27 inches) which clears the soils and sends nutrients and carbohydrates to the roots in dormancy. This coupled with extremely dry summers (. 15 inches of rain) gives the grapes low risk of moisture associated diseases at fruit set as well as keeps the sugar and acids in balance when getting closer to harvest.

## B. Soil and Geology:

The base geology for the AVA is almost entirely mesozoic granitic rock, with enclaves of Miocene volcanic rock near the Chalone area (figure 3). This uniformity of base geology is incredibly rare within larger AVAs. The soils derived from the granitic base largely fall into the Sheridan Cieneba Auberry Association. These soils are sloping to very steep sloping well drained to excessively drained, moderately coarse textured soils over granite. (figure 4) Decomposed granite is some of the best soil for drainage in heavy rains and holding moisture during dry periods. Therefore, holding less water the soils stress the vines and produces smaller berries with rich flavors. The valleys on both sides of the range contain medium textured soils on floodplains and alluvial fans. With slopes of $9-60 \%$ in the Gabilan Mountains, the granitic and sandy soils allow the water to percolate down to creeks and watersheds of the range causing the soils to drain water quickly. The effect of this stresses the vines through the growing season, especially during veraison and creates more intense flavors that capture the mountainous soils. The quick draining shallow soils also allow growers better soil moisture management and the ability to control stress on the vines.

Arguably the most significant aspect of the soil with regard to distinguishing this region for wine grapes is the limestone content. There are extensive deposits of limestone located in the Gabilan Range in a several square mile area extending from Fremont Peak. In fact, the limestone deposits of the Mount Harlan and McPhails Peak district contain the only known chemical grade deposits of limestone in San Benito County. ${ }^{11}$ Limestone is one of the key marks of great wine regions such as Champagne, Burgundy, Chablis, the Loire, and southern Rhône valleys.

[^3]The principal chemical component in limestone is calcium carbonate. The calcium rich soils allow for plants to store water well in dry seasons and drain well with heavy rains. Waterlogged soils can cause root decay in clay and other non well-draining soils. The other aspect that calcium-based soils have is allowing grapes to carry acid later into the growing season. The vineyards in the proposed AVA typically harvest 2-3 weeks after valley floor vineyards. Coastview vineyard averages its first pick of Chardonnay in late august/early september and Syrah doesn't get finished until the beginning of October. This difference in harvest times instantly distinguishes the area from immediate neighbors in both valleys of Monterey and San Benito. Allowing the grapes to hang on the vines longer to achieve physiologically ripeness helps creates a desired finish to the growing season for winemakers. The well drained soils are distinguishable feature that make them truly unique for growing premium grapes. The exceptional stress on the vines throughout the growing seasons offer the grapes a robust flavor and rich hardy skins due to the slopes and soils.

## III. Subsumed AVAs

## A. Mount Harlan AVA

Mount Harlan AVA was petitioned by Josh Jensen on behalf of Calera Wine Company and established in 1990. There are 7 vineyards under Calera Wine Company's umbrella totaling 67 acres of planted vines. Elevations from 1,800 to 2,400ft the AVA is set apart from its neighboring valley floor AVAs like Cienega Valley and Lime Kiln Valley AVAs. The AVA exhibits low mildew pressure and less risk of frost. Primarily distinguished by the microclimate of the mountains coupled with the limestone rich soils, the AVA has produced some of the best Pinot in San Benito County.

## B. Chalone AVA

Planted in 1919, Chalone holds the oldest producing vines in Monterey County. Chalone sits at a 1,800 foot elevation in the Gabilan Mountain Range, near the Pinnacles National Monument. Hot and arid climates allow for 50 degree diurnal temperature swings from 90s to the 40s during the summer time harvest (exhibit 3). With soils consisting of decomposed granite
with smaller amounts of clay and limestone. This AVA is planted to 300 acres of primarily Chardonnay, Pinot Noir and Pinot Blanc. The area is most famous for the Judgment of Paris in 1976, where against all odds, the Chardonnay from Chalone Vineyard outscored the Burgundy wines. Originally the Chalone AVA petition was intended to be called The Pinnacles, and then the Gavilan Mountains, but the final rulemaking found the proposed area was too restrictive to qualify for the designation Gavilan (or Gabilan) Mountains. ${ }^{12}$

## C. Central Coast AVA

The Central Coast AVA is a large general region that covers approximately 1 million acres and encompasses 17 other AVAs. The main purpose for the AVA was creating an area distinguished by general marine influence which differs from further inland areas. It is bounded on the west by the Pacific Ocean and on the east by the California Coastal Ranges. The Coastal Ranges form a barrier to the marine influence on climate, causing precipitation, heat summation, maximum high temperatures, minimum low temperatures, length of the frost-free season, wind, marine fog incursion, and relative humidity to be significantly different on opposite sides of these mountains. ${ }^{13}$

## D. Similarities and Differences with The Gabilan Mountains AVA

After reviewing the three other involved AVAs there are similarities that would garnish sharing geographic locale, but enough differences to distinguish them as unique viticultural areas. The Central Coast AVA's rule of a marine influenced climate applies to both Mt. Harlan and Chalone as well as the proposed AVA. However the Central Coast AVA is too inclusive on bounds of elevation and soil composition to account for the microclimate that the proposed AVA sets forth. The similarities of the Chalone, Mt. Harlan and Gabilan Mountains AVA primarily of elevation and soil. The base geology for these three AVAs are uniform to a shocking degree (figure 3) when compared to other inclusive AVAs. The combination of these similarities among

[^4]the subsumed AVAs allows for the same premium grapes to be grown in vineyards all across the AVA, namley Pinot Noir, Chardonnay, Syrah, Grenache, and Cabernet. This shows that there is a consistent microclimate and base geology to allow such varietals to thrive.

There are nuanced differences that would differentiate Chalone and Mt. Harlan from the Gabilan Mountains AVA. Though all above the 1500 ft elevation, the mean elevations differ between the three. Mount Harlan has a average elevation of 2,280 ft , Chalone's average elevation is $1,615 \mathrm{ft}$ and the proposed Gabilan Mountains average elevation would be at $2,370 \mathrm{ft}$. There is less rainfall in the south end of the Gabilan Range as the Santa Lucias collect the moisture, while the north end of the range has direct access to the pacific storms that come through allowing for more precipitation. ${ }^{14}$ According the Rulemaking for Mt. Harlan, the area receives 35-40 inches of rain ${ }^{15}$, while NOAAs Pinnacles weather station in close proximity to Chalone averages 17.24 inches. (Exhibit 3) The Gabilan Mountains AVA is a beautiful balance of both the north and south tips of the range providing a realization of a larger geographic tie in for the sub-AVAs; which makes a great deal of sense due to climatic and geologic continuity throughout this mountain range.

## IV. Conclusion

The Gabilan Mountains AVA, if approved, will contain both Mt. Harlan and Chalone AVAs and remain within the Central Coast AVA benefitting both consumers and growers within subs-AVAs together. The Gabilan Mountains AVA would create a larger area that is more easily identifiable and straightforward description to assist the consumer. By establishing the Gabilan Mountains viticultural area, TTB will complete a sensible and natural viticultural agreement between the division already begun in this viticulturally significant area by collecting these mountainous grapes and distinguishing them from valley grapes; thereby aiding the consumer in identifying grape origin.

[^5]TTB Note: Due to their size, Figures 1 and 3 of the petition were not scanned. Please contact TTB for more information.

Figure 2: USGS map of low lying clouds and fog





## EXHIBIT 1



EXHIBIT 2 Photos from Coastview Vineyard looking west over the Gabilan foothills and the low lying clouds in the Salinas Valley to the Santa Lucia range


EHIBIT 3 Data from 5 NOAA weather stations in and around the proposed AVA

The 1981-2010 Climate Normals are NCDC's latest three-decade averages of climatological variables, including temperature and precipitation.


## PINNACLES NM, CA US View station Detals view station Report

| SEASON | - PRECIP (IN) | - MIN TMP ( ${ }^{\circ} \mathrm{F}$ ) | - AVG TMP ( ${ }^{\circ} \mathrm{F}$ ) | - MAX TMP ( ${ }^{\circ} \mathrm{F}$ ) |
| :---: | :---: | :---: | :---: | :---: |
| Annual | 17.24 | 35.3 | 56.2 | 77.0 |
| Winter | 9.64 | 27.6 | 44.8 | 62.0 |
| Summer | 0.15 | 43.3 | 68.0 | 92.7 |
| Spring | 4.82 | 33.9 | 53.3 | 72.8 |
| Autumn | 2.63 | 36.3 | 58.2 | 80.2 |

PAICINES 4 W, CA US

| SEASON | - PRECIP (IN) | - MIN TMP ( ${ }^{\circ} \mathrm{F}$ ) | - AVG TMP ( ${ }^{\circ} \mathrm{F}$ ) | - MAX TMP ( ${ }^{\circ} \mathrm{F}$ ) |
| :---: | :---: | :---: | :---: | :---: |
| Annual | 16.06 | 40.6 | 56.2 | 71.9 |
| Winter | 9.07 | 33.8 | 46.2 | 58.6 |
| Summer | 0.11 | 47.7 | 66.4 | 85.1 |
| Spring | 4.10 | 39.5 | 54.5 | 69.5 |
| Autumn | 2.78 | 41.1 | 57.5 | 73.9 |


| SEASON | - PRECIP (IN) | - MIN TMP ( ${ }^{\circ} \mathrm{F}$ ) | - AVG TMP ( ${ }^{\circ} \mathrm{F}$ ) | - MAX TMP ( ${ }^{\circ} \mathrm{F}$ ) |
| :---: | :---: | :---: | :---: | :---: |
| Annual | 12.83 | 48.3 | 58.0 | 67.7 |
| Winter | 7.02 | 41.7 | 51.7 | 61.7 |
| Summer | 0.12 | 54.6 | 62.9 | 71.1 |
| Spring | 3.54 | 47.1 | 56.9 | 66.7 |
| Autumn | 2.15 | 49.5 | 60.4 | 71.2 |

## HOLLISTER 2, CA US

| SEASON | - PRECIP (IN) | ¢ MIN TMP ( ${ }^{\circ} \mathrm{F}$ ) | - AVG TMP ( ${ }^{\circ} \mathrm{F}$ ) | - MAX TMP ( ${ }^{\circ} \mathrm{F}$ ) |
| :---: | :---: | :---: | :---: | :---: |
| Annual | 14.19 | 45.9 | 58.8 | 71.8 |
| Winter | 7.80 | 38.9 | 49.9 | 60.9 |
| Summer | 0.08 | 52.5 | 66.6 | 80.7 |
| Spring | 3.73 | 44.8 | 57.5 | 70.3 |
| Autumn | 2.58 | 47.1 | 61.2 | 75.2 |

## EXHIBIT 3

USGS Maps list:

Soledad Quadrangle, California 7.5-Minute Series, 2015
Gonzales Quadrangle, California 7.5-Minute Series, 2015
Bickmore Canyon Quadrangle, California 7.5-Minute Series, 2015
North Chalone Peak Quadrangle, California 7.5-Minute Series, 2015
Natividad Quadrangle, California 7.5-Minute Series, 2015
Hollister Quadrangle, California 7.5-Minute Series, 2015
San Juan Bautista Quadrangle, California 7.5-Minute Series, 2015
Mount Harlan Quadrangle, California 7.5-Minute Series, 2015
Mount Johnson Quadrangle, California 7.5-Minute Series, 2015
Paicines Quadrangle, California 7.5-Minute Series, 2015
Soledad Quadrangle, California 7.5-Minute Series, 2015


[^0]:    ${ }^{1}$ Gudde, Erwin G., and William Bright. Califomia Place Names the Origin and Etymology of Current Geographical Names. Berkeley: $U$ of California, 2010. Print.
    ${ }^{2}$ U.S. Geological Survey. Geographic Names Phase I data compiation (1976-1981). 31-Dec-1981. Primarily from U.S. Geologicał Survey 1:24,000-scale topographic maps (or 1:25K, Puerto Rico 1:20K) and from U.S. Board on Geographic Names files. In some instances, from $1: 62,500$ scale or $1: 250,000$ scale maps.

[^1]:    ${ }^{3}$ Steinbeck, John. East of Eden. New York: Penguin Books, 2002.
    ${ }^{4}$ USGS. "Feature Detail Report For: Gabilan Range." www.genomes.usgs.gov. Geographic Names Information Systems, n.d. Web.
    ${ }^{5}$ Wake. "Gabilan Mountains Slender Salamander - Batrachoseps Gavilanensis." San Francisco Gartersnake - Thamnophis Sirtalis Tetrataenia, 2001, www.californiaherps.com/salamanders/pages/b.gavilanensis.html.
    ${ }^{6}$ "Gabilan Range, Hollister, CA 95023 - Estimate and Home Details | Trulia." Trulia Real Estate Search, Trulia's Blog, www.trulia.com/homes/CA/Hollister/sold/3215992968-Gabilan-Range-Hollister-CA-95023.
    ${ }^{7}$ California State Parks, State of California. "Spanish and Mexican Heritage Sites." CA State Parks, www.parks.ca.gov/?page_id=22678.
    8 "Pinnacles National Park Hiking Tour." Mountain Hiking Holidays, www.mountainhikingholidays.com/pinnacles-national-park-hiking-tour/.

[^2]:    ${ }^{9}$ Data on AVA elevation was collected from www.everyvine.com
    ${ }^{10}$ Torregrosa, A., Combs, C., \& Peters, J. (2015). Goes-derived fog and low cloud indices for Coastal North and Central California ecological analyses. Earth and Space Science. doi:10.1002/2015EA000119

[^3]:    ${ }^{11}$ United States. San Benito Board of Supervisors. ENVIRONMENTAL RESOURCES AND CONSTRAINTS INVENTORY. N.p.: n.p., n.d. Cosb.us. Web. 11 Dec. 2017. [http://cosb.us/wp-content/uploads/SBC-ExistingGP-EnvConst.pdf](http://cosb.us/wp-content/uploads/SBC-ExistingGP-EnvConst.pdf).

[^4]:    ${ }^{12} 47$ FR 25517, Federal Register $\S 386$ (1982). Print.
    ${ }^{13} 50$ FR 43128 , Federal Register $\S 206$ (1985). Print

[^5]:    ${ }^{14}$ Isgrig, Dan. "Soil Survey: San Benito County, California." Soil Survey: San Benito County, California, U.S. Soil Conservation Service; for Sale by the Supt. of Docs., U.S. Govt. Print. Off., 1969, p. 107.
    ${ }^{15} 55$ FR 22926, Federal Register § 108 (1990). Print

