Abacela Vineyards and Winery
12500 Lookingglass Road
Roseburg OR 97470-9067

Phone 541.679.6642
Fax 541.679.4455
email: jonesh@jeffnet.org

Friday, June 7, 2002

Regulations Department
Bureau of Alcohol, Tobacco and Firearms
650 Massachusetts Avenue NW
Washington D.C. 20226

Dear Sir:
In accordance with the procedures delineated in 27 CFR, Section 4.25a (e) 2, we hereby petition the BATF to establish an overlap viticultural area within the State of Oregon to be known as "Southern Oregon." The undersigned are 1) owner/winemaker of a winery as well as owner of an associated vineyard within the proposed viticultural area, and 2) an associate professor of Geography and regional research specialist in climatology.
It is our purpose in this petition to show that "Southern Oregon" is a widely known name for this region, that the area is well defined, and that the area is distinguished from other surrounding areas particularly, its northern neighbor, the Willamette Valley by its climate and ability to grow warmer climate winegrape varietals.

General Information: The Cascade mountains and high desert of eastern Oregon restrict Oregon's winegrape production, with the exception of the Columbia River/Walla Walla AVA's, to the valleys of western Oregon. These valleys are narrow in their east-west dimension being confined between the Cascade and Coastal mountain ranges. In contrast, their north-south extent ranges from the Columbia River 300 miles south to the California border. In general these lands rise in elevation toward the south and half way down the state the climate abruptly changes to a warmer and more arid growing season (Table 1). The Willamette AVA is located within the northern half of this area where the climate limits production to cool climate grape varietals. The southern half of this area contains the Applegate, Umpqua and Rogue AVA's, which share a warmer climate and its capacity to produce warm climate grape varietals.

"(I) Evidence that the name of the proposed viticultural area is locally and or nationally known as referring to the area specified in the petition".
It is common practice for a portion of a geographical area to be named from one of the cardinal points of the compass. In addition, the naming and use of geographic place names is something that often takes on a meaning relative to the perspective one has.

Often the physical landscape or cultural differences play an important role in people identifying with a given region—this is one such case. While someone from outside the region may take the State of Oregon and divide it into two halves (i.e., north and south), Oregonians are sharply divided by and largely identify with the naturally occurring topographical regions of the state. Our state is physically and culturally divided into the coastal zone (west of the Coastal Range of mountains), the Willamette Valley (from Eugene north to Portland), the intermountain valleys (the valleys along the Interstate 5 corridor), the Cascades (the spine of Oregon's dominant mountain chain), and Eastern Oregon (all lands from the Cascades eastward to the border).

Evidence for this description of "Southern Oregon" can be found from many sources:

The Encyclopedia of Oregon states that, "The Southern Oregon Region, extending from the Calapooya Mountains southward to the state line between the Cascades and the Coast Range, is of rough topography, with heavily timbered mountainsides, dissected plateaus, and interior valleys of fine fruit, nut, and vegetable land" (p 13). This description mirrors the proposed "Southern Oregon" viticultural area, including all of the intermountain valleys from the coast range on the west and the Cascades on the east, extending south of the Calapooya Mountains to the California border.

In addition, an examination of geographic place name use in phone books throughout the region reveals that the use of "Southern Oregon" is largely confined to the intermountain valleys described above. For example, phone books from Roseburg, Canyonville, Cave Junction, Grants Pass, Medford, and Ashland (in Douglas, Jackson, and Josephine Counties within the proposed area) have multiple pages of businesses listed as "Southern Oregon ..." while phone books from Klamath Falls, Lakeview, (east of the proposed area) indicate "Central Oregon" designations with the only "Southern Oregon" designations coming from businesses in the proposed area; Eugene (north of the proposed area) has less than 25 listings and most from businesses within the proposed area; while businesses in Coos Bay, Gold Beach, and Brookings (west of the proposed area) do not readily identify with any geographic naming convention and the only "Southern Oregon" designations come from businesses in the proposed area.

Furthermore, a prominent Oregon professional business publication, *Oregon Business*, maintains Advisory Panels in which "Southern Oregon" is clearly represented by individuals from within the proposed area. In a recent issue, Trey Senn, Executive Director of the Klamath County Economic Development Association, states that "... And, really, we are not Southern, Eastern, or even Central; we are defined by the state as South Central. ...(p 8)."

From the above it is apparent that Jackson, Josephine and Douglas counties are in "Southern Oregon" and when the term "Southern Oregon" refers to winegrape production (see Pawsey, 2000 and Shara-Hall 2001) it specifically references the Applegate, Umpqua, and Rogue viticultural areas.

"(II) Historical or current evidence that the boundaries of the proposed viticultural area are as specified in the petition".

The boundaries of the Umpqua, and Rogue AVAs are well established and clearly documented in BATF, Title 27, Code of Federal Regulations, Part 9.89 and Part 9.132. The recent establishment of Applegate Valley AVA (BATF, Title 27, Code of Federal Regulations, Part 9.165), which lies entirely within the Rogue AVA, does not modify the Rogue AVA boundary. In a similar manner, the proposed "Southern Oregon" boundary encompasses the Applegate, Rogue, and Umpqua AVAs and is connected along township/range lines (the connecting area includes a valley that has similar potential to grow grapes as areas both to the north and south). Consequently, there will be no changes in the boundaries of any of the 3 existing AVAs mentioned above all of which shall lie within the proposed overlapping "Southern Oregon" AVA.

"(III) Evidence relating to geographical features (climate, soil, elevation, physical features, etc) which distinguish the viticultural features of the proposed area from the surrounding areas"

The viticultural potential of western Oregon's valleys has been studied by Aney (1974) and Mastin (1983) both of which based their conclusions on climatic records. A more recent review of climate data for western Oregon is presented in a condensed form in Table 1. Degree-day heat summations for the Willamette Valley show an average of 2052 heat units. The summer temperatures are moderated to that level by a maritime effect produced by movement of cool Pacific Ocean breezes through gaps and low areas in the coastal mountains. The cool afternoon winds that blow through the Van Duzer corridor (near Salem, Oregon) in summer are a prime example of this cooling system.
An average of 77" of rain falls annually along the 300 plus mile Oregon coast. The valleys of western Oregon are shielded to varying degrees from this high rainfall by their respective coastal mountains. From the table it is evident the Willamette AVA receives 10-12 inches more rain annually than the Umpqua and Rogue AVAs.

In order to objectively establish the geographic differences of the climates between the regions of Oregon, we statistically examined 34 long-term climate stations from various locations in Oregon and Northern California (WRCC, 2001). The locations represent stations from the Willamette Valley (17 stations), the Rogue and Umpqua Valleys (11 stations), east of the Cascades (3 stations), the Oregon Coast (3 stations), and Northern California (2 stations) (Table 2). From the long-term climate data we chose six climate variables (Table 2) that are deemed to be important in defining the capacity of an area to grow *vitis vinifera* grapevines in Oregon (Jones, in press and others).

The six climate variables for these 34 stations were subjected to cluster analysis to help define the climatic similarities of the regions. Cluster analysis is a statistical procedure that objectively categorizes individual units into groups that are naturally similar in regard to the variables that represent them (Anderberg, 1973). The main goal is to produce groups or categories that have small internal variance (very similar to each member of the group) but large between group variance (very dissimilar groups). This method has been used in numerous climate studies to help define climate types and

zones, days with high pollution events, and regions with similar drought frequency (Fovell and Fovell, 1993 and others).

The results of the cluster analysis show that the 34 stations fall into four groups (clusters) based upon their six climate variables (Table 2). The cluster means of the climate variables are given in Table 3. Cluster one has most of the Willamette Valley stations and has been titled as such (Table 3, subjectively named). Clusters two through four have station memberships that coincide with the Rogue/Umpqua Valley, Eastern Cascades and California, and the Oregon Coast and are respectively named (Table 3). Cluster one exhibits intermediate climate characteristics of the other clusters but stands out as being cooler and wetter than cluster two (Rogue/Umpqua Valleys). Cluster two provides the warmest growing season conditions of the four groups. Cluster three clearly exhibits a cooler, shorter growing season climate that is driven by the relative elevation of the region and its distance from the Pacific Ocean. The cold winters in these areas would kill many wine grapevines and the short growing seasons would insufficient for fruit to ripen. Cluster four, while having the longest growing season, does not accumulate enough heat to ripen most varieties and the higher rainfall amounts, especially during early autumn, would create a very high powdery mildew and botrytis risk.

The grouping follows the expected geographical distribution with a few minor exceptions; 1) two stations from the Willamette Valley (Portland and Oregon City) and two stations from the Umpqua Valley (Drain and Elkton) end up in clusters one and two, respectively, and 2) Yreka, California is placed in cluster two. The differences can easily be explained by:

- The fact that the Portland and Oregon City stations are very urbanized and follow the known pattern of warmer climates associated with large cities (Karl et al., 1988).
- Drain and Elkton, found in the northern portion of the Umpqua Valley, are members of cluster one due to two climate variables–precipitation and growing degree days. While both of these stations are clearly within the geographical bounds of the Umpqua Valley region, they are exposed to more marine air and rainfall due to being near the main stem of the Umpqua River as it flows to the Pacific and being north of the major topographical divide that shelters the rest of the Umpqua from the cooler air flow from the west.
- The placement of Yreka in cluster two is a result of the location having similar growing season temperatures and degree-day heat accumulation, however its elevation and over winter minimum temperatures, along with it clearly being outside the geographical bounds of the Rogue Valley, means that it is more similar to stations east of the Cascades (if more Northern California stations were used in the analysis it would be expected to group better with those stations).

It quickly becomes apparent from Tables 1-3 that the general climate structure is much different in "Southern Oregon." In particular, degree-day heat summations are much greater in "Southern Oregon" and similar for the Umpqua and Rogue AVAs.

From a landscape perspective, the topographical barriers afforded by the southern coastal mountains, in particular the Klamaths, are considerable and largely blocks or minimizes the maritime effect that dominates the Willamette Valley. These more lofty coastal mountains reach 2,500 feet in elevation North of Roseburg and rise to more than 5,000 feet towards the California border. This high relief barrier does not allow marine air to freely move inland. These coastal mountains also produce a considerable orographic effect that casts an ever-increasing rain shadow to the south and east. As one travels from the north into "Southern Oregon" it becomes apparent that each succeeding valley to the south and east lies at a higher elevation. Most Willamette Valley vineyards lie only a few hundred feet above sea level. The higher vineyards in the Umpqua are at 1000 feet above sea level and those in the Rogue are typically at elevations of 1,200 to 2,000 feet.

From a pedological perspective, the soils of "Southern Oregon" are very different from those of the Willamette Valley and surrounding areas. The Willamette Valley was formed in recent geologic time (i.e., 25 million years ago) as an extension of the ocean or perhaps multiple interconnected bays, which gradually filled with sediments and occasional basalt lava flows (Alt and Hyndman, 1993). The valley was also a depository for the silts and sediments of the glacial Lake Missoula flood. The deposition of these sediments helps explain the flatness of much of the Willamette Valley. Thus the soils and topography of the Willamette Valley were created relatively recently in a very quick and orderly process. Along the coastal zone the soils are more highly weathered and consist of a mix older volcanics and accreted terranes of oceanic crust and from the Cascades eastward the soils vary from mostly young volcanics to aridisols. In contrast, Alt and Hyndman (1993) point out that the soils of "Southern Oregon" were derived from the Klamath Mountains, an old geologic formation that existed 200 million years ago in the Triassic and Jurassic periods. These ancient mountains extend up from California to the latitude of Roseburg. They are comprised of sedimentary rocks like gabbro, periodolite, serpentinite, mudstone and sandstone. A slow and complex geologic process has crushed, metamorphosed and modified these rock substrates through leeching, melting and mingling with intrusions of granitic batholiths and other volcanics. Thus the soils of "Southern Oregon" were derived slowly from ancient rocks with little contribution by more recent silts and sediments like those that formed the Willamette soils. In addition, the mountainous topography of "Southern Oregon" has created numerous valleys with interesting slopes, aspects and microclimates that provide unique opportunities for wine grape growing.

From a geographical perspective, the types of grape varieties growing within the regions can also be evidence of the differences in climate, topography, and soil described above. Gladstones (1992) has defined nine (9) winegrape maturity groups, with group 1 requiring the least and group 9 the most growing season heat to reach ripeness. Both Aney (1974) and Mastin (1983) independently predicted cool climate grape varietals like those included in Gladstones's groups 1,2 and 3 (which include Madeleine, Chasselas, Muller-Thurgau, Pinot Gris, Pinot Noir and Chardonnay) could be produced in the Willamette Valley. These climatic-based appraisals of the Willamette's grape growing potential have proven true. A review of the 1999 Oregon Agricultural Statistics for planted grapevines shows the Willamette Valley to contain 87 % of the state's Pinot Gris

and 92% of the state's Pinot Noir. In the aggregate, the Umpqua and Rogue AVAs are planted to only 13 and 8 percent, respectively of these same varietals.

Aney (1974) and Mastin (1983) also concluded that Southern Oregon's Umpqua and Rogue areas could produce warm climate grapes that correspond to Gladstones's groups 4, 5 and 6, which include Riesling, Semillon, Merlot, Cabernet Sauvignon, and Syrah. Thus it should not be surprising that the 1999 Oregon Vineyard Report shows that these "Southern Oregon" AVAs are planted to 82% and 99% respectively of western Oregon's Cabernet Sauvignon and Merlot grapes.

In a similar sense it is important to note that this same report also makes reference to "other grapes" being produced in the state. The "other grapes" consist of smaller plantings of a wide variety of winegrapes for which space does not permit printing the details. A recent survey of such plantings in "Southern Oregon" (October, 2000) found there to be more than 165 acres of Syrah, 46 acres of Cabernet Franc, 35 acres of Viognier, 30 acres of Tempranillo, 26 acres of Zinfandel, 15 acres of Sangiovese, 10 acres of Malbec and 10 acres of Grenache planted. These grapes are members of Gladstones's groups 4, 5, 6 and 7. It should not go unnoted that wine writers today (i.e., Pawsey , 2000 and Shara-Hall, 2001) are well aware of the excellent local wines currently being produced as well as the viticultural potential of "Southern Oregon".

Despite the demonstrated ability of the Umpqua and Rogue AVAs to produce warm climate grapes one may search out cool microclimates within Southern Oregon's many and varied hillsides and valleys. This approach has been notable successfully with Pinot Noir, Pinot Gris and Riesling on selected sites in the Rogue's Illinois Valley and in the northern and western parts of the Umpqua AVA. Thus "Southern Oregon" enjoys a unique position of being able to produce both warm and cool climate winegrape varietals of excellent quality. For these reasons "Southern Oregon" is virtually "a world of wine".

From the above it should now be apparent that the Applegate, Umpqua and Rogue AVAs share: (1) a warm, sunny, arid climate; (2) bedrock geology that has yielded old, complex soils; (3) a varied mountainous topography where vineyards are typically situated at high elevations, and (4) the ability to produce a wide range of varietals. These features distinguish the "Southern Oregon" AVAs from the Willamette Valley, the Coastal Region, and the Cascades. These features also make warm climate viticulture possible in "Southern Oregon".

"(IV) A description of the specific boundaries of the viticultural area, based on features which can be found on United States Geological Survey (U.S.G.S.) maps of the largest applicable scale"

The proposed "Southern Oregon" AVA shall as an overlap AVA have the same boundaries as those of the Rogue AVA and the Umpqua AVA along with a connector between the two (see Figure 1 for a spatial depiction of the proposed boundary). The area of the proposed "Southern Oregon" AVA is roughly 2,001,430 acres, which equals the sum of the areas for the Rogue AVA (1,147,044 acres), the Umpqua AVA (689,154

acres), and the area in the connecting region (165,232 acres). The description is as follows:

(a) *Name.* The name of the viticultural area described in this section is "Southern Oregon."
(b) *Approved maps.* The appropriate maps for determining the boundaries of the Umpqua Valley viticultural area are two U.S.G.S. maps. They are titled:
    (1) "Roseburg," scale 1:250,000 (1958, revised 1970); and
    (2) "Medford," scale 1:250,000 (1955, revised 1976).
(c) *Boundaries.* The Southern Oregon viticultural area is located entirely within Douglas, Jackson, and Josephine Counties, Oregon. The beginning point is the intersection of Interstate Highway 5 with the Douglas/Lane County line in Township 21 South (T21S), Range 4 West (R4W) on the "Roseburg" map.
    (1) From the beginning point, the boundary proceeds north along the Douglas/Lane County line approximately .5 miles to the 1,000-foot contour line;
    (2) Thence northwest along the 1,000-foot contour line to the Douglas/Lane County line; thence west along the Douglas/Lane County line approximately 2.5 miles, returning to the 1,000-foot contour line, thence in a generally westerly direction along the 1,000-foot contour line to the R9W/R10W range line;
    (3) Thence south along the R9W/R10W range line approximately 2.75 miles to the center of the Umpqua River; thence along a straight line in an easterly direction approximately 6.25 miles to the intersection of range line R8W/R9W with the center of the Umpqua River; thence south along range line R8W/R9W approximately 3.5 miles to its intersection with township line T22S/T23S;
    (4) Thence southeast approximately 8.5 miles along a straight line to the intersection of township line T23S/T24S with range line R7W/R8W; thence south along the R7W/R8W range line approximately 8 miles to its intersection with the 1,000-foot contour line; thence in a southeasterly direction in a straight line approximately 3.5 miles towards the intersection of township line T25S/T26S with range line R6W/R7W, returning to the 1,000-foot;
    (5) Thence in a southerly direction along the 1,000-foot contour line to the intersection of township line T27S/T28S with range line R7W/R8W; thence in a southwesterly direction in a straight line approximately 3.5 miles towards the intersection of township line T28S/T29S with range line R8W/R9W, returning to the 1,000-foot contour line; thence south along the 1,000-foot contour line to its intersection with township line T29S/T30S;
    (6) Thence east along township line T29S/T30S approximately .33 miles, rejoining the 1,000-foot contour line; thence in a northerly and eventually a southerly direction along the 1,000-foot contour line past the town of Riddle on the "Medford" map to range line R6W/R7W; thence south along the R6W/R7W range line approximately 14.2 miles to the Josephine County/Douglas County line, thence in a general northeasterly direction along the Josephine County/Douglas County line to its intersection with Interstate 5 approximately 1.2 miles south of the Glendale exit;
    (7) Thence the boundary proceeds southerly and southwesterly along U.S. Interstate 5 to and including the town of Wolf Creek; thence westerly and southerly out of the town of Wolf Creek along the Southern Pacific Railway Line to and including the town of Hugo; thence southwesterly along the secondary, hard surface road known as Hugo Road to the point where the Hugo Road crosses Jumpoff Joe Creek; thence westerly and down stream along Jumpoff Joe Creek to the intersection of Jumpoff Joe Creek and the Rogue River;

(8) Thence northwesterly and down stream along the Rogue River to the first point where the Wild and Scenic Rogue River designated area touches the easterly boundary of the Siskiyou National Forest just south of Galice;
(9) Thence in a generally southwesterly direction (with many diversions) along the easterly border of the Siskiyou National Forest to the 42 degree 0 minute latitude line; thence easterly along the 42 degree 0 minute latitude line to the point where the Siskiyou National Forest again crosses into Oregon approximately 1 mile east of U.S. Highway 199;
(10) Thence in a generally northeasterly direction and then in a southeasterly direction (with many diversions) along the northern boundary of the Siskiyou National Forest to the point where the Siskiyou National Forest touches the Rogue River National Forest at Big Sugarloaf Peak;
(11) Thence in a generally easterly direction (with many diversions) along the northern boarder of the Rogue River National Forest to the point where the Rogue River National Forest intersects with Slide Creek approximately 6 miles southeast of Ashland;
(12) Thence southeasterly and northeasterly along Slide Creek to the point where it intersects State Highway 273; thence northwesterly along State Highway 273 to the point where it intersects State Highway 66; thence in an easterly direction approximately 5 miles along State Highway 66 to the east line of Township 39 South, Range 2 East (T39S, R2E);
(13) Thence following the east line of T39S, R2E, in a northerly direction to the northeast corner of T39S, R2E; thence westerly approximately five miles along the north line of T39S, R2E, to the 2,600 foot contour line; thence in a northerly direction following the 2,600 foot counter line across Walker Creek and then in a southwesterly direction to the point where the 2,600 foot contour line touches the east line of T38S, R1E;
(14) Thence northerly along the east line of T38S, R1E, to the northeast corner of T38S, R1E;
(15) Thence westerly along the north line of T38S, R1E, to the northwest corner of T38S, R1E;
(16) Thence northerly along the west line of T37S, R1E, to the northwest corner of T37S, R1E;
(17) Thence easterly along the north lines of T37S, R1E, and T37S, R2E, to the southeast corner of T36S, R2E;
(18) Thence northerly along the east line of T36S, R2E, to the northeast corner of T36S, R2E;
(19) Thence westerly along the north line of T36S, R2E, to the northwest corner of T36S, R2E;
(20) Thence northerly along the east line of T35S, R1E, to the northeast corner of T35S, R1E;
(21) Thence westerly along the north line of T35S, R1E, to the northwest corner of T35S, R1E;
(22) Thence northerly along the east line of T34S, R1W, to the northwest corner of T34S, R1W;
(23) Thence westerly along the north lines of T34S, R1E; T34S, R2W; T34S, R3W; T34S, R4W; and T34S, R5W, to the northwest corner of T34S, R5W;
(24) Thence northerly along the west line of T33S, R5W, to the Josephine County/Douglas County line; thence in a generally east, northeasterly direction along the Josephine County/Douglas County line to the intersection of R3W/R4W range line; thence north along the R3W/R4W range line approximately 11.8 miles

to the 1000-foot contour line just south of State Road 227 east of the town of Days Creek;

(25) Thence in an easterly, westerly, and eventually a northerly direction along the 1,000-foot contour line to a point approximately 3.5 miles east of Dillard, where the contour line crosses Interstate Highway 5 on the "Roseburg" map; thence northeast along Interstate Highway 5 approximately .25 mile, returning to the 1,000-foot contour line; thence in a generally northeasterly, southeasterly, northwesterly, and eventually a northeasterly direction along the 1,000-foot contour line past the town of Idleyld Park to the R2W/R3W range line;

(26) Thence north along range line R2W/R3W approximately 1.75 miles to the T25S/T26S township line; thence west along township line T25S/T26S approximately .25 mile, returning to the 1,000-foot contour line; thence in a generally westerly and then a northerly direction along the 1,000-foot contour line up the valley of Calapooya Creek to the R3W/R4W range line; thence north along range line R3W/R4W approximately 2.25 miles, back to the 1,000-foot contour line;

(27) Thence in a westerly and then a northerly direction along the 1,000-foot contour line to the T23S/T24S township line, thence east along the T23S/T24S township line approximately 2.75 miles to the 1,000-foot contour line; thence in a northerly direction along the 1,000-foot contour line to its intersection with the Douglas/Lane Country line; thence north along the Douglas/Lane Country line approximately .75 mile to the point of beginning.

"(V) A copy of the appropriate U.S.G.S. map(s) with the boundaries prominently marked."

Medford, Oregon, California (NK 10-5) scale 1:250,000 (1955, revised 1976)
and
Roseburg, Oregon (NK 10-2) scale 1:250,000 (1958, revised 1970)

Thank you for the privilege of submitting this petition, we are

H. Earl Jones

Owner/winemaker Oregon BW 206

Gregory V. Jones, Ph.D.

Associate Professor
Geography Department
Southern Oregon University

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Table 1 - Average Climate Characteristics For Western Oregon Stations *

Station	Degree Days **	Annual Precipitation (inches)
Willamette AVA Average	**2052**	**45**
Beaverton	2097	40
McMinnville	2066	49
Dallas	2022	48
Salem	2021	39
Corvallis	2005	43
Eugene	2099	49
Umpqua AVA Average	**2420**	**32**
Winchester	2436	34
Roseburg	2445	32
Riddle	2378	31
Rogue AVA Average	**2574**	**35**
Grants Pass	2870	31
Ruch	2531	26
Medford(Exp)	2490	21
Cave Junction	2403	60

* From reference 5, "Site Selection" Oregon Winegrape Grower's Guide (see references)
** Degree-Days, base 50°F for April-October growing season.

Table 2 – Climate stations and variables used in the cluster analysis and their cluster membership.

Location	Elevation	July Tmax	Jan Tmin	GSTavg	GrDD	Precip	Ffree	Cluster
Beaverton	270	78.9	32.5	59.3	2097	39.77	190	1
Corvallis	230	80.1	32.9	58.8	2005	42.67	186	1
Corvallis Water Bureau	590	78.4	31.7	57.6	1796	66.13	191	1
Cottage Grove	650	81.2	32.4	57.9	1820	45.54	131	1
Dallas	290	82.6	32.8	59.0	2022	48.42	168	1
Eugene	360	82.0	33.2	59.3	2099	49.25	185	1
Forest Grove	180	81.6	32.3	59.9	2205	43.86	177	1
Hillsboro	160	80.1	33.0	59.0	2038	37.57	173	1
Lacomb	520	77.8	31.5	57.9	1810	55.90	175	1
McMinnville	150	81.9	33.8	59.1	2066	41.86	167	1
Salem	200	81.5	32.6	58.9	2021	39.24	165	1
Silverton	410	78.4	32.4	59.1	2034	45.85	207	1
Stayton	430	80.1	32.5	58.9	2030	51.48	185	1
Drain	292	83.0	33.7	59.8	2185	45.70	175	1*
Elkton	122	83.9	35.9	61.1	2278	53.83	220	1*
Oregon City	170	81.9	34.6	61.3	2495	47.06	215	2*
Portland	20	79.8	33.6	60.8	2386	36.32	223	2*
Riddle	680	83.4	33.9	60.8	2378	30.74	227	2
Roseburg	465	83.5	34.6	61.1	2445	32.44	207	2
Winchester	460	85.2	36.2	61.4	2436	34.29	183	2
Ashland	1750	86.8	29.6	60.2	2338	19.19	154	2
Cave Junction	1280	88.5	31.9	60.7	2403	59.80	153	2
Grants Pass	960	90.1	32.7	63.1	2870	31.12	169	2
Medford Airport	1300	90.5	30.1	62.6	2815	18.90	166	2
Medford Exp. Station	1457	88.8	30.1	61.2	2490	21.20	140	2
Ruch	1549	89.3	29.7	61.3	2531	26.01	137	2
Yreka	2630	90.5	24.3	62.6	2565	19.61	144	2*
Klamath Falls Exp. Station	4090	82.6	20.9	55.8	1701	12.98	112	3
Chiloquin	4190	83.5	14.0	51.7	1083	17.49	105	3
Chemult	4760	82.2	14.9	50.8	962	25.00	100	3
Weed	3590	84.5	23.1	56.8	1816	26.06	106	3
Bandon	100	65.8	38.4	55.0	1179	59.71	227	4
Brookings	50	67.4	40.9	57.1	1513	72.61	300	4
Gold Beach	50	67.3	40.4	56.5	1414	80.39	277	4

Locations in blue are in the Willamette Valley, in red the Umpqua and Rogue Valley, in green either eastern Cascade or California stations, and in purple the coastal stations.

Data Source: Western Region Climate Center (2001)

Table 3 – Cluster means for the six climate variables used in the procedure.

Variable	Cluster 1 - Willamette	Cluster 2 - Rogue and Umpqua	Cluster 3 - East Cascades and California	Cluster 4 - Coast
Elevation (feet)	324	917	3852	67
July Maximum Temperature (°F)	80.8	86.2	84.7	66.8
January Minumim Temperature (°F)	32.9	32.5	19.4	39.9
Growing Season Average Temperature (°F)	59.0	61.3	55.5	56.2
Growing Degree Days (base 50°F)	2034	2508	1625	1369
Annual Precipitation (inches)	47.1	32.5	20.2	70.9
Frost Free Season (in days)	180	179	113	268

Data Source: Western Region Climate Center (2001)

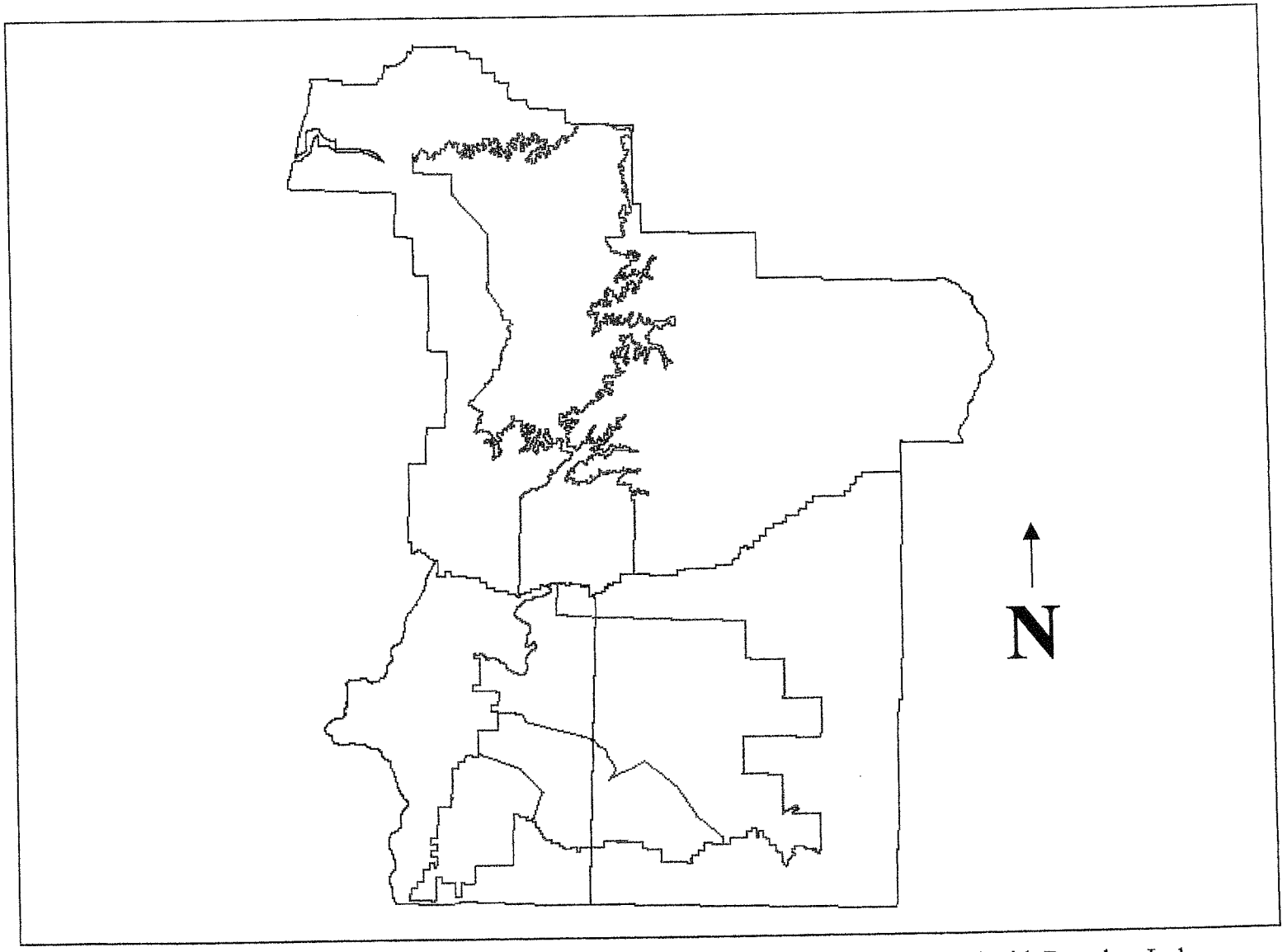

Figure 1 – Spatial depiction of the proposed Southern Oregon AVA boundary (shown in red with Douglas, Jackson, and Josephine Counties in black.)