At the Corner of Redwood and Vine:

Perspectives on Forest-to-Vineyard Conversion Conflicts in Sonoma County

Senior Thesis

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Abstract

Two large vineyard projects in the Gualala River Watershed in northern California propose converting over 1,800 acres of coastal redwood forest to grape vines. Located in the remote northwestern corner of Sonoma County, the forest-to-vineyard conversion projects are often perceived as a war between redwood and grape vine, environmentalist and wine grower. But opposition to these projects is not necessarily anti-wine. Environmentalists and local residents are opposed to clear-cutting forests, an alteration of the landscape that severely degrades watershed health. Many growers in the county also object to the projects and are concerned that conversions like these taint the entire industry, which contributes considerably to the county's economy. This study analyzes the conflict over forest-to-vineyard conversion in Sonoma County through the perspectives of four groups: local environmentalists, wine growers, residents of Sonoma County, and residents within the Gualala Watershed region. Using a survey to examine perceptions of landscapes and land-use, the study finds a consensus among these groups regarding the important cultural value of redwoods and oak woodlands, concern over the environmental degradation caused by vineyard conversion projects, and opposition to clear-cutting. These sentiments are especially strong among the communities in the secluded Gualala region. Their local perceptions of the landscape affect its composition, and the landscape itself ultimately helps shape their identities. The study discusses whether county land-use decisions account for their perspectives.

Key words: clear-cut, land conversion, perspective survey, redwoods, Sonoma County, vineyards.

Introduction

The Sonoma County Board of Supervisors is currently reviewing the two largest-ever forest-to-vineyard conversions proposed in the region. Together, the Artesa and Preservation Ranch projects would clear-cut over 1,800 acres of secondary-growth redwood forest in the remote Gualala River Watershed (see figure 1) (Wilkison 2012a). On January 31, 2012, the county responded to opposition from environmental groups and local residents by implementing a four-month moratorium on all projects involving tree removal. Opponents argue that the loss of these redwoods would fragment surrounding habitat and severely degrade the health of the watershed, whose rivers and streams host threatened salmonid species. Gualala communities have also objected to the destruction of Native American sites on the properties near Annapolis.

Despite these environmental and cultural concerns, the developers behind the projects (see property lines in figure 2) have a strong argument from an economic standpoint. The land in Gualala is relatively cheap and well-suited for growing pinot noir grapes, one of the varietals that helped Sonoma County become an internationally recognized wine-growing region. The wine industry has expanded rapidly since the 1980s in terms of economy and landscape: wine grapes account for nearly two-thirds of total agricultural production value and are cultivated on over 56,000 acres of the county (SCAC 2011). The wine industry generates billions of dollars for Sonoma County and provides thousands of jobs (Insel 2005). Some environmentalists believe that this is why county regulation of vineyard expansion has been so lenient.

While forest-to-vineyard conversion seemingly pits one iconic landscape feature of the county against another, the conflict in Gualala is about clear-cutting. The media tends to polarize the controversy, pitting redwood against grape vine and environmentalist against winegrower. Winegrowers thus protest that these projects disrepute the entire industry, and opponents must clarify that they are not, in fact, simply anti-vineyard. The central issue of the debate is whether forests should be clear-cut for agriculture, and this necessitates a discussion of how the people of Sonoma County define their own landscapes.

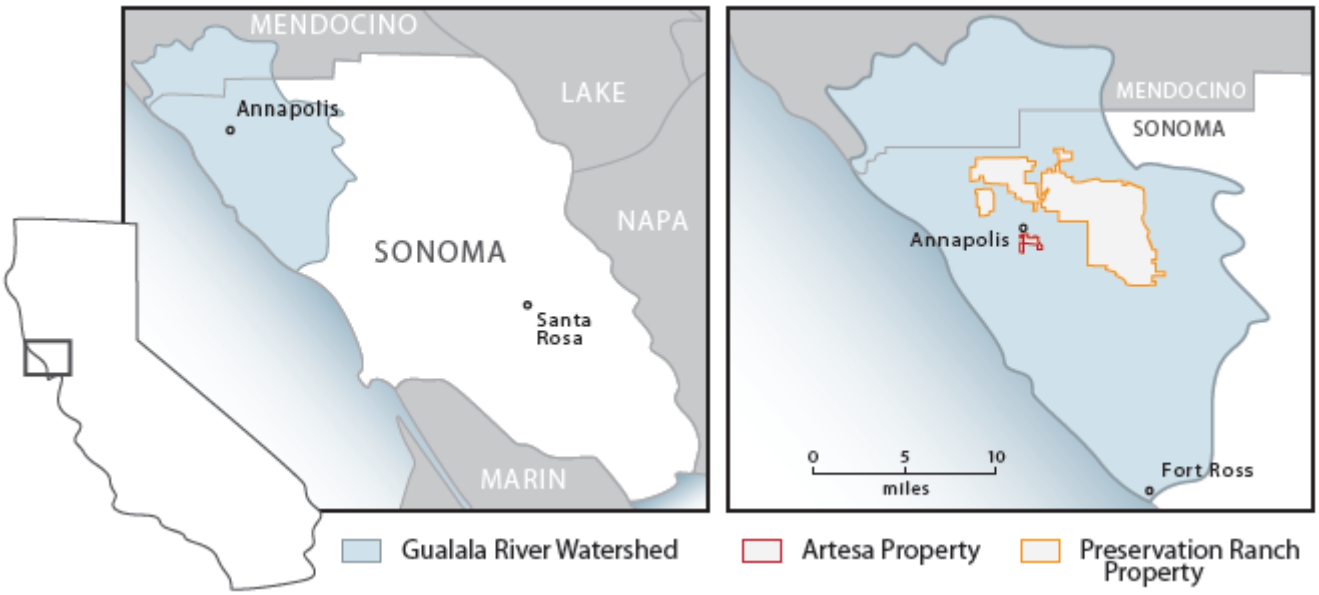
With the Gualala watershed vineyard proposals as a case study, this paper examines perspectives on the forest-to-vineyard conversion conflict in Sonoma County. In order to study local perspectives, surveys were distributed to local environmentalists, wine growers, residents of Sonoma County, and residents within the Gualala Watershed region. The survey included questions about the cultural and economic value of vineyards and forests, the environmental impacts of viticulture, and county regulation of tree removal. The results of all surveyed groups demonstrate an appreciation for the cultural value of redwoods and oak woodlands, concern over environmental degradation caused by vineyard conversion projects, and opposition to clear-cutting. These sentiments are strongest among Gualala residents, whose identities are closely intertwined with the landscape in question.

This consensus over the value of forest landscapes in Sonoma County demonstrates that opposition to the Gualala projects is anti-clear-cutting, not anti-vineyard. It is a struggle between large-scale developers and diverse groups of local residents, not a debate between growers and environmentalists. If the Board of Supervisors approves the Artesa and Preservation Ranch

projects, the landscape will cease to reflect and nurture local identities and values. Altered and degraded, it will reflect the economic interests of a few influential parties, and suffer environmental and cultural harm in the process.

Figure 1.
The Gualala River Watershed drains parts of Mendocino as well as Sonoma County.

Figure 2.
Property lines of the Preservation Ranch and Artesa projects in the Gualala Watershed.



Compiled from: Entrix 2009; Raney Planning & Management, Inc. 2009

Growing wine and industry

Sonoma County's wine industry has expanded rapidly. Wine grape acreage in Sonoma County more than doubled during the last three decades (SCAC 2011). Grape vines covered about 25,000 acres of the county in 1979, the highest acreage since Prohibition (SCAC 1999). Today, 59,659 acres of Sonoma County are planted with grape vines (SCAC 2011). Despite fluctuations in bearing acreage (non-bearing refers to land planted in vines, but not currently in production) from 2000 onward (see Table 1), grape vines currently account for 93.6 percent of all fruit and nut acreage in the county.

During the last fifty years, grapes have surpassed Sonoma County's other crops in terms of both acres and dollars. In 1965, apple orchards covered over 10,000 acres of Sonoma County (Carman 1993). While overall state acreage has increased, acreage within Sonoma has fallen to 2,616 acres, and many apple growers continue to convert to the more profitable grape (Bland 2011a; SCAC 2011). During the 1980s, China's cheap exports of apple juice concentrate crippled California producers who could not compete pricewise (Bland 2011a). Meanwhile, the value of Sonoma County apple production dropped from about seventeen million USD to less than nine million (SCAC 1999). During that same decade, wine grape value nearly quadrupled (see Table 2). By 1989, wine grapes had displaced dairy products as the county's most valuable agricultural product (SCAC 1999). The data in Table 2 does not include livestock, poultry, or

nursery products, but when these sectors are included, wine grapes still account for 65.8 percent of agricultural crop value (SCAC 2011).

Wine and its related industries generate $8.2 billion for Sonoma County (Insel 2005). In 2011, California sold an estimated $19.9 billion worth of wine (WI 2012). Wine is also a major pull for the county's $1.2 billion tourism industry (EDB 2011a). Wineries are the primary operation of 20.8 percent of tourism industry businesses, second to lodging at 31.9 percent. Sonoma's reputation as a premier tourist destination is only expected to grow. Revenue from exports is also rising. California produced 90 percent of U.S. exports in 2011, which were valued at a record $1.39 billion (WI 2012).

Table 1.
Sonoma County wine grape acreage 1990-2010.

Year	Bearing acres	Year	Bearing acres
1990	33,164	2003	52,176
1992	34,498	2004	50,010
1994	36,060	2005	57,050
1996	38,399	2006	55,507
1998	44,681	2007	58,899
2000	55,877	2008	55,431
2001	43,589	2009	56,306
2002	59,891	2010	56,522

Data sources: SCAC 2002; SCAC 2006; SCAC 2007; SCAC 2009; SCAC 2011; Thomas 2004.

Table 2.
Sonoma County wine grape crop value 1949-present; pre-1999 data adjusted to 1999 dollar.

Year	Wine grape value (USD)	Percent of total crop value
1949	1,255,300	1.87
1959	1,836,000	2.59
1969	4,967,000	6.48
1979	34,866,000	18.72
1989	122,306,600	41.08
1999	269,271,000	55.75
2009	460,771,200	95.49
2010	390,488,300	94.18

Data sources: SCAC 1999; SCAC 2011.

The name Sonoma County is a powerful marketing tool for winemakers. While local apple varieties struggle to compete with cheap mass-produced imports, wine capitalizes on its *terroir* (Bland 2011a). *Terroir* is the French concept that a wine's flavor is specific to the soil and environment of its grapes' origins (Mitchell et al 2012). Appellations, the geographic regions associated with *terroir*, inform consumers where the grapes were grown and allude to the quality of the wine. Sonoma wines are already marketed under thirteen appellations, or American Viticultural Areas, and by 2014, every county wine must also print "Sonoma County" on its label (EDB 2011b; SCWGC 2012). These labels sell both a product and a place. Sonoma County's name and *terroir* add value to its wine, and in terms of 60,000 acres of vines and over 34,000 wine industry jobs, wine adds value to Sonoma County (Insel 2005).

A not-so-clear-cut issue

For some of the county's residents, biologists, and environmentalists, however, the wine industry's billion dollar revenues do not excuse its environmental costs. Poorly regulated diversions from the county's Russian River deplete water levels and stress endangered steelhead trout and coho salmon populations (Bland 2011c). Last September, California's Water Resources

Control Board responded by instituting a new "demand management" program to more effectively monitor water use (Wilkison 2011).

Runoff is one of the biggest issues associated with new vineyard projects. For the last two decades, vineyard development has moved increasingly upslope onto steeper, sometimes forested hillsides, triggering concern over the effects of erosion and sedimentation on watershed health (Tesconi 1999; Wilkison 2010a). Before 1990, less than 6 percent of vineyards occupied slopes at or above an 18 percent gradient (Thomas 2004). During the 1990s, 25 percent of new vineyard projects were situated at this gradient. Growers can cultivate more lucrative varietals at these higher elevations, but steeper slopes also mean increased erosion rates (Shepherd and Grismer 2007). Sediment concentrations in runoff increase from an average of 5 g/L at 7 percent slope to 26 g/L at 25 percent slope.

The correlation between slope gradient and soil loss is strongest on bare soils (Shepherd and Grismer 2007). Undisturbed, vegetated soils are relatively unaffected, as plant roots help stabilize surrounding soil. A tree canopy also eases the impact of precipitation, increasing soil permeability on the forest floor (Kareiva and Marvier 2011). In a forest-to-vineyard conversion, soil loses that protection. Eroded soil then travels to a water body downstream. Every watershed in Sonoma County is currently listed as impaired by sediment, heat, or nutrient pollution under the Clean Water Act (OAEC 2006). Studies of salmonid populations in Sonoma Creek reveal that suspended sediment concentrations stress the development of steelhead trout and Chinook salmon, both listed as threatened species by the U.S. Fish and Wildlife Service (SEC 2004).

This environmental degradation prompted the adoption of the Vineyard Erosion and Sediment Control Ordinance (VESCO) by the Sonoma County Board of Supervisors in 2000. The purpose of VESCO is to minimize erosion and sedimentation from vineyard operations in order to protect riparian habitats and water quality. It requires sediment control plans from new projects on slopes above a 10 or 15 percent slope gradient, prohibits vineyard activities on hillsides above 50 percent, and requires twenty-five to fifty-foot riparian setbacks. Dave Jordan of the local environmental group Friends of the Gualala River (FoGR) said that in order to be issued a land-use permit from the county, developers only need to claim that they are complying with county-recommended best management practices. The county cannot enforce those practices, and because the permits are ministerial rather than discretionary, projects evade review under the California Environmental Quality Act (CEQA). By contrast, Napa County's ordinance requires CEQA review for projects on slopes above 5 percent (Goetz 2000).

Environmentalists say that VESCO's measures are inadequate and that projects should require review under CEQA (Tesconi 2000). But growers convinced the Board of Supervisors that filing Environmental Impact Reports (EIR) for CEQA would be too expensive and time-consuming. Many felt such regulation was unnecessary, as most operations were already environmentally conscientious (Goetz 2000). Then-Agricultural Commissioner John Westoby said that it was in the interest of vineyards to maximize soil retention, and that the industry should not be characterized by the projects of a few newcomers lacking knowledge of the landscape (Tesconi 1999).

But VESCO also fails to address tree removal. The county's recent attempts to regulate tree removal—a drafted ordinance by the Sonoma County Agricultural Commissioner, submitted in April—would regulate tree removal on slopes of 15 percent or more if the parcel is over half an acre in size (McCallum 2012). Removal would only be prohibited if on slopes of 40 percent or more. Sonoma County does not regulate tree removal. Dave Jordan says that these regulations, if ministerial, would be essentially toothless. Tree removal is a hot issue outside of vineyard development as well. This March, Sonoma County residents openly challenged Pacific Gas and Electric's plans to remove trees along a 39-mile corridor (Benefield 2012).

Tree removal is clearly controversial in Sonoma County, but vineyard-related conflicts tend to be represented as manifestations of anti-vineyard sentiment. Media representations can simplify disputes into binary debates between grower and environmentalist. In 2010, residents and environmentalists opposing a forest-to-vineyard conversion in eastern Sonoma County's isolated Knights Valley declared that they were not anti-commerce; they were seeking to protect "a still pristine area" (Wilkison 2010a). Opposition was anti-clear-cutting, not anti-wine.

Failing to make this distinction may alienate and even demonize environmentally conscientious winegrowers. In fact, growers, environmentalists, and residents alike have united against forest-to-vineyard conversions. Such was the case with Paul Hobbs, a winemaker in the Sebastopol area who clear-cut twenty-five acres of trees on three separate occasions in 2011 (Bland 2011b). These are certainly not the only instances of recent clear-cutting—between 1979 and 2006, twenty-five forest-to-agriculture conversions removed over five hundred acres of trees. But Hobbs' projects drew attention because they were highly visible, particularly a parcel along the scenic Highway 116 corridor. His most recent transgression in November 2011 earned him chastisement from Supervisor Efren Carillo, a rare incident between local politician and grower. Growers are especially resentful of Hobbs' actions, as such offenses often tarnish the reputation of the entire industry (Wilkison 2012c).

Conflict in the Gualala River Watershed

The Artesa and Preservation Ranch proposals dwarf Hobbs' misdemeanors. Thus far in Sonoma County, the largest forest-to-vineyard project has been Kendall-Jackson's forty-one acre conversion in 1997 (Bland 2011b). Codorníu, the century-old Spanish conglomerate behind Artesa, plans to clear-cut 146 acres of redwood forest on its Annapolis property (Wilkison 2012d). The California Public Employees' Retirement System's (CalPERS) Preservation Ranch project will clear-cut 1,769 acres. Together, their vineyards will remove nearly three square miles of redwoods. The Board of Supervisors responded to local and national opposition by imposing a four-month moratorium, beginning January 31, 2012, on all vineyard projects requiring tree removal.

CalPERS and Codorníu have both worked to appease public opposition. CalPERS represents its 1,769-acre vineyard operation as a small fraction of its 19,652 acre property (Wilkison 2012d). They will set aside nearly 3,000 acres for a wildlife preserve. But this may not be so much a choice as a practicality. Most of the property sits on slopes that are far too steep for

cultivation (see figure 3). The 1,769 acres of vineyards will be scattered across the property, a patchwork of vines and roads along the landscape's ridge tops (see figure 4). "They're going to plant just about everywhere they *can* plant," says Dave Jordan. Vineyards will fragment the entire property, including the preserve. Artesa's plan is similarly patchy (see figure 5). Fragmentation reduces interior habitat and makes it more difficult for species to avoid habitat edges, where human mortality rates are often higher (Kareiva and Marvier 2011). This edge effect increases the overall area affected by habitat degradation.

Figure 3.
Slope analysis for Preservation Ranch. Vineyards will occupy slopes of 15 to 30 percent (green). The majority of the ranch is situated on slopes of 50 percent or more (pink), where cultivation is illegal as well as impractical.

Source: Entrix 2009.

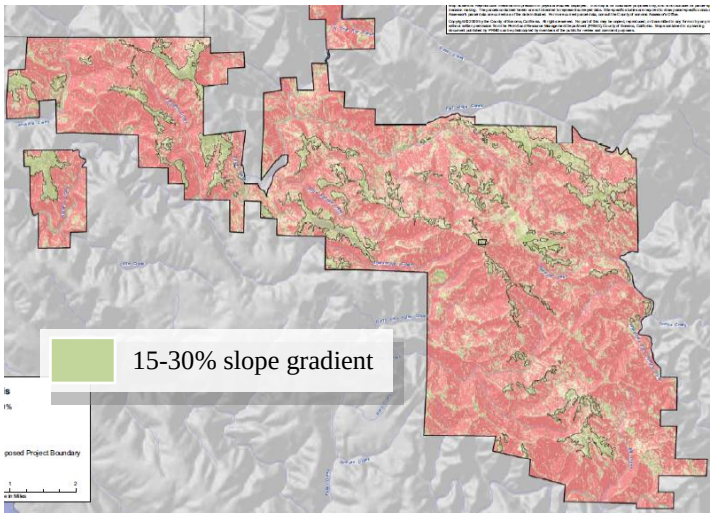


Figure 4.
Project components of Preservation Ranch. Brown patches represent the proposed vineyards. The light tan color is the Windy Gap Preserve Easement, situated on steep slopes unsuitable for cultivation.

Source: Entrix 2009.

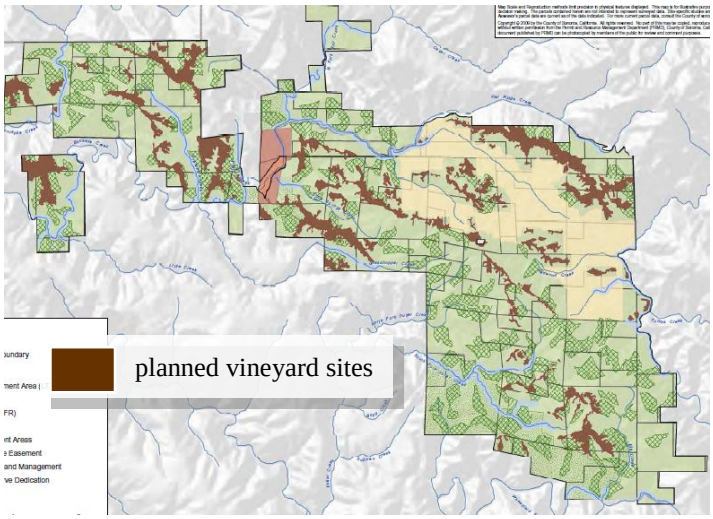
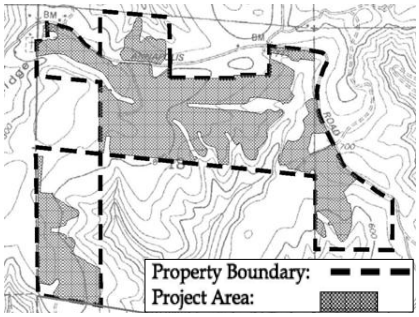


Figure 5.
Artesa's vineyard project area.

Source: Raney Planning & Management, Inc. 2009



Codorníu and CalPERS emphasize that these are not old-growth coastal redwoods. They represent the secondary growth forest as recovering from lumber extraction that began in the 1940s (Durrance 2011). Preservation Ranch's land-use consultant claims that the landscape is "degraded" and that these projects are restoration plans. But a secondary-growth redwood "sapling" is no twig in the duff. A *sequoia sempervirens* seedling may grow eighteen inches in its first season, and four to ten-year-old saplings may grow 6.5 feet per season (Griffith 1992). The forest surrounding Annapolis is a thriving habitat that supports larger fauna like foxes, mountain lions, wild hogs, bears, lynx, bobcats, eagles, and falcons (Durrance 2011). Locals and environmentalists argue that the real degradation would be clear-cutting the recovering forest.

Two local communities, Starcross Community and the Kashaya Pomo tribe, have stated that they will be directly affected by the Artesa project. The main concern for Starcross, a 36-year-old monastic group dedicated to caring for children with AIDS, is noise pollution. Quiet is essential to life at Starcross, which is located directly across the road from the Artesa property. They have requested several times that Artesa relocate their corporate yard, but Artesa representatives dismissed their appeals. Artesa's final EIR, currently pending approval, claims that issues with Starcross have been resolved.

The Kashaya Pomo, one of s Native American tribes who have lived in the area for thousands of years, will also suffer cultural harm. A Pomo village, with artifacts that range from 5,000 to 7,000 years old, lies beneath Artesa's property (Baye 2010). These include ancestral remains. Artesa says that they will build around the boundaries of these sites and instruct operators of earth-moving equipment to report sightings of human artifacts as they work. Both elders and young Pomo have publicly spoken against the projects, expressing that trees for wine on ancestral land is not a fair trade. An eighth grade Pomo girl said, "We don't need more wine and we don't need more deaths, either, from alcohol poisoning or drunk driving" (Smith 2012).

Yet Artesa is close to obtaining a state permit for its conversion (Wilkison 2012d). News coverage of the controversy continues to polarize the debate, pitting "fans of the majestic trees" against "aficionados of the grapes" (Sahagun and Huffstutter 2011). But this is not an all-out war against wine grapes. One Starcross minister explained, "We're not anti-vineyard in principle at all. One of the most wonderful things about this area is the combination of the redwood forest and some agricultural land…so plant your grapes there, but you don't have to cut the forest down to that. This is just one of the few places in the world where redwoods are going to grow." Some opponents of Artesa and Preservation Ranch may be staunchly against vineyard expansion, but the fight is more specifically against clear-cutting forests for vines—or any other purpose.

The conflict is also about protecting the landscape that residents identify with and value. Landscapes both construct and are constructed by cultural identities (Walker and Fortmann 2003). Dynamic in nature, identities are "formed and re-formed out of a set of historical and political possibilities" (Sokolove et al 2002, 25). Cultural identities may thus interpret the same landscape and construct different values within it. In the area surrounding Annapolis, Starcross values the serenity. The Pomo value the history. Their identities are given a context within this landscape, which is now at risk of significant alteration. In such a meaningful place, Codorníu

and CalPERS have the means to inflict cultural as well as environmental harm. This research examines perceptions of landscapes held by different groups in Sonoma County in order to discuss whose values should shape the landscape's future.

Methods

Participants

This study compares the perspectives of four groups in Sonoma County: members of local environmental organizations, grape growers and winegrowers, residents within Gualala Watershed, and Sonoma County residents outside the watershed, hereafter referred to as environmentalists, growers, Gualala residents, and Sonoma residents. A target sample of twenty participants from each group was chosen considering time and resources. This sample size should not be problematic, as the primarily qualitative data is not intended for statistical analysis.

The first two interest groups are often engaged in Sonoma County's land-use discourse. I contacted six environmental groups based in Sonoma County whose mission statements include reference to water quality, stream health, or habitat preservation. Three of the groups agreed to participate, and I relied on these contacts to elicit the participation of other organizations. I approached twenty-five growers and three grower associations in Sonoma County by phone and or email. Participants include grape growers (growing grapes only), vineyard owners (making wine only), and wine growers (growing grapes and making wine). All completed the survey online via the website Survey Monkey.

I distinguish between resident groups for two reasons. First, it is more practical to refer to the Gualala residents separately because the northern portion of the watershed is actually located in Mendocino County. Second, I wanted to factor in proximity to the Artesa and Preservation Ranch projects when comparing perspectives. Residents were contacted through several channels. Eight Gualala residents were randomly approached at the Gualala marketplace, a public commercial area frequented by a variety of residents. The remainder of participants responded online, and I relied on the "snowball effect," beginning with three key contacts, to obtain the participation of residents from Sea Ranch, Stewarts Point, Annapolis, and Gualala. Sonoma residents were approached in public spaces of downtown Petaluma and Santa Rosa but also reported residency in Forestville, Sonoma, or Cazadero.

Instrumentation

The study uses a combination of rating scale survey questions and optional open-ended questions. The goal of the survey was to obtain participants' opinions concerning the cultural and economic value of vineyards and forests, the environmental implications of viticultural practices, forest-to-vine conversions, and the Gualala vineyard proposals.

Participants responded to eleven statements for the rating scale portion of the survey (see Appendix A). Though a longer survey would better account for nuances in perspectives, this study favored a shorter questionnaire to encourage participation. The first eight statements use a seven-point Likert scale from 'strongly agree' (value of seven) to 'strongly disagree' (value of

one) (WCI 2012). Statements nine through eleven use a seven-point semantic differential scale from 'very supportive' (value of seven) to 'very opposed' (value of one). These statements proposed hypothetical scenarios involving tree removal; statements nine and ten refer to scattered trees and continuous forest, respectively, to make a cursory comparison of scales.

Participants could choose to respond to the open-ended questions listed in Appendix E. The online questionnaire more successfully acquired responses to open questions.

Results

Statements from the rating-scale survey have been grouped into economy, culture, environment, and land-use categories. Datasets for each category, as well as a summary of open-ended question responses, are organized in the appendices (see table 3). The target sample was exceeded for every participant group except the growers (see table 4), one of whom commented that the case study of this research likely makes it a sensitive topic for the grower group.

Economy (statements 1, 3, and 5). Over 14 percent of participants strongly agree that vineyards are economically essential to Sonoma County, and another 55.4 percent of participants agree or somewhat agree. Participants more strongly agree over the economic value of redwoods and oak woodlands. All groups disagree with the statement that vineyard development is more economically valuable than habitat preservation.

Culture (statements 2, 4, and 8). With the exception of the growers, all groups respond more strongly to the statement regarding the cultural importance of forests. A plurality of 37.8 percent of participants somewhat agree that vineyards are culturally important to the county, while 79 percent strongly agree that redwoods and oak woodlands are culturally important. All groups agree that the county should protect Native American sites.

Environment (statements 6-7). Growers are the only group to express strong confidence in the environmental effectiveness of land management practices. Responses vary among the other groups, though most seem to only somewhat disagree. Every group at least somewhat agrees that vineyard development has environmental impacts beyond habitat loss.

Land-use (statements 9-11). Seven out of eight growers support cutting a few trees for vineyards. Residents and environmentalists are somewhat opposed. But every group, including the majority of growers, opposes proposals to clear-cut continuous forest. Only 3.3 percent of participants responded "supportive" or "somewhat supportive," while 64.7 percent are strongly opposed. All groups would support legislation prohibiting clear-cuts for vineyard development.

Table 3.
Index of appendices.

		Pages
A	Rating-scale survey example	*A1*
B	Economy category survey results (statements 1, 3, and 5)	*A2-A4*
C	Culture category survey results (statements 2, 4, and 8)	*A5-A7*
D	Environment category survey results (statements 6 and 7)	*A8-A9*
E	Land-use category survey results (statements 9-11)	*A10-A12*
F	Selected responses to open ended questions	*A13*

Table 4.
Responses per participant group.

Survey component	Environ-mentalists	Growers	Gualala residents	Sonoma residents	Total
Rating-scale statements	43	8	44	24	119
At least one optional open question	40	7	23	8	78

Table 5.
Mean responses and standard deviation. Statements 1-8 use a scale from strongly disagree (1) to strongly agree (7). Statements 9-11 use a scale from very opposed (1) to very supportive (7).

Statement	*Environmentalists*	*Growers*	*Gualala res.*	*Sonoma res.*	σ
S1	5.07	6.63	3.89	5.33	1.12
S2	5.21	6.63	4.25	5.17	0.98
S3	6.58	5.75	6.25	5.58	0.46
S4	6.93	6.63	6.68	6.33	0.25
S5	1.6	3.25	1.93	3.42	0.92
S6	2.74	5.38	3.07	3.58	1.18
S7	6.81	4.75	6.09	5.58	0.87
S8	6.63	5.13	6.18	6.33	0.65
S9	2.79	5.63	3.36	3.83	1.23
S10	1.14	2.63	1.73	2	0.62
S11	6.58	4.63	5.93	5.5	0.82

Discussion

All of the participant groups agree that redwoods and oak woodlands have cultural and economic value in Sonoma County. The cultural importance of these forests unites the opinions of growers, environmentalists, and residents more than any other topic in the study's survey. Responses between groups are also fairly consistent regarding environmental degradation (statement seven), Native American sites (statement eight), and clear-cutting (statements ten and eleven). While this study does not attempt to systemically quantify the value that people give to forests and vineyards, these trends among the responses are still evident.

These four consistent themes—the cultural and economic importance of forests, the environmental impacts of vineyard development, opposition to clear-cutting, and the need to protect Native American sites in forests—outline the key arguments against the projects proposals in Gualala. This study is limited by sample size and a potential bias from snowballing, but there appears to be a strong consensus among all groups that forest landscapes are valuable to Sonoma County. For both environmental and cultural reasons, clear-cutting redwoods is unacceptable. This consensus indicates that the Artesa and Preservation Ranch projects conflict with the perception of Sonoma's landscape shared by environmentalists, growers, and residents.

Culture and economy

Cultural beliefs are representations of "myths and symbolic discourse that reveal 'the basic values that permeate society'" (Mitchell et al 2012, 314). The redwood is one of those symbols of Sonoma County's natural landscapes. Out of 119 survey responses, there is only one 'no opinion' and one 'disagree' regarding the cultural importance of redwoods and oaks. Among open-ended answers, 43.7 percent specifically say redwoods are iconic of Sonoma. Other common responses include the coast, oaks, and the blend between natural and agricultural landscapes. Only 5.6 percent of respondents mentioned vineyards without also citing redwoods.

The participant groups are more divided over the value of vineyards. As might be expected, most growers 'strongly agree' that vineyards have cultural importance, while few Gualala residents even 'somewhat agree.' Environmentalists and Sonoma residents hover between the two. The more a group acknowledges the economic value of vineyards, the more it values them culturally. By contrast, every group feels more strongly about the cultural importance of redwoods and oak woodlands than their economic value.

One of the arguments in favor of the projects is that they will generate employment and revenue in the area (Durrance 2011). But if the cultural value of a landscape in Gualala is more important than its economic value, promises of jobs and revenue will not justify watershed degradation. Some residents say that the economic benefits will be short-term, and others believe that the projects will actually come at a cost to residents. In an interview in Annapolis, Randall Sinclair of FoGR reports:

> The infrastructure here doesn't exist to support these projects. There are places on this road that are ready to fall into the river, and it gets worse as you go up to Skaggs Road, where the workers will be coming from. The county is going to have to raise taxes to pay to rebuild the whole road structure to get these people in and out safely. It's the landowners and property owners that will pay these taxes. We're going to start demanding money to make roads for people who want to make profits off of wine? And here we are cutting social services? It's shameful.

Environmental awareness

Although some respondents do mention agriculture and "rolling hills" as iconic to Sonoma County, most are concerned about the environmental impact of human activity on the landscape. A plurality of respondents simply define rural landscapes by the presence of manmade features or agriculture, but 15.2 percent of definitions used negative descriptions like "polluted" and "disrupted." According to the survey, some growers believe that careful land management of vineyards can mitigate environmental damage, but the other groups 'somewhat disagree.' All generally agree that vineyard development has a negative environmental impact.

The survey suggests that growers, environmentalists, and residents are aware of viticulture's toll on the environment. Only 6.4 percent of respondents to the open questions feel that vineyards are less harmful than commonly believed, and 14.1 percent say that a vineyard's

impact depends on the grower or the use of organic practices. The remaining 79.5 percent cited chemical pollutants, stressed water resources, or erosion as main causes of environmental degradation. The county is well-informed and concerned about watershed health. But when local residents, archaeologists, botanists, environmental planners, biologists, foresters, FoGR, the Sierra Club, and the Center for Biological Diversity wrote letters responding to Artesa's EIRs, their concerns were dismissed. Dave Jordan explains CalFIRE's response to the letters:

> It turns out we're all dullards. Every single concern that we and our experts raised it turns out was wrong…We may be dull, but we're not that bad. It's just not credible that everything we said was wrong. With the final EIR, CEQA says the agency may, but is not required, to open it for public comment. CalFIRE decided they had so much trouble with us the first time that they didn't want us saying anything more.

Though their final EIR has been submitted, Artesa will be subject to the pending tree removal ordinance (Wilkison 2012d). Nearly two-thirds of survey participants are 'very opposed' to clear-cutting continuous forest, and 92.5 percent are at least 'somewhat opposed.' Alternatively, 31.9 percent would approve projects that cut scattered trees for vines. This suggests that people are willing to make compromises for vineyard development, but that clear-cutting whole stands of trees is too extreme. Opposition is not anti-wine. Phrasing the controversy this way unnecessarily alienates growers, because the conflict in Gualala is about clear-cutting redwood forests.

The local perspective

As opinionated as Sonoma County appears to be, opponents can only challenge the clear-cuts that they notice. While Paul Hobbs' actions were highly visible, most clear-cuts, like those of Pride and Cornell Vineyards, are overlooked by the public (Bland 2011b). The county oversees land-use decisions, grants permits, and, according to critics of the Board of Supervisors, consistently disregards CEQA. One environmentalist says "some of the people [on the board] are basically in the pocket of agriculture. Their districts are very dominated by agricultural money, so they're going to vote the way their constituents want them to vote." Developers are rarely required to submit EIRs, making Codorníu and CalPERS exceptional cases.

If not for their large physical scale, Artesa and Preservation Ranch may have also passed unnoticed. The Gualala Watershed is removed from the county's metropolitan areas, and the city of Annapolis is relatively small and secluded. The remoteness is what attracts many residents, including the Starcross community, to the area. One anonymous grower comments that it also makes Annapolis an impractical location for vineyards. Though the land may be cheap compared to other places in the county, he is concerned about the logistics of being so remote. "The roads aren't that good. You're talking about hundreds of semi-trucks hauling grapes out, for one thing,

and a very small window of harvest time. That's going to be a nightmare unless they do something about the roads, which I don't think is possible."

Annapolis' seclusion may also mentally distance the rest of the county from the projects. This makes it difficult to rally opposition regardless of how strongly people feel. While respondents to this survey all agree that Native American sites merit protection from the county, the Board of Supervisors has largely ignored the burial site on Artesa's property. Growers, environmentalists, and residents alike oppose clear-cuts and would support a county-implemented ban, but the county's best effort to date—a ministerial approach to controlling tree removal—is still just a draft.

Sonoma County, not the state of California, has jurisdiction over basic land-use decisions, so discourse can take place at a more local level (CSAC 2006). But there is a wide variety of perspectives and place-linked identities within the county. Of this survey's four participant groups, Gualala residents find vineyards less valuable than forests economically, ecologically, and culturally. They say they have a more intimate understanding of the landscape. One grower in the watershed said, "I think if you live on the land, you have a different perspective than if you lived somewhere else and made money off the land." Artesa is a multi-national corporation, removed from the landscape. During an interview in Annapolis, FoGR president Chris Poehlmann summarized the difference between corporate and local perspectives:

> Do you think they really care what happens to coastal redwoods in California, living in Spain? I don't think so. They're looking at their bottom line, and that they want to incorporate this *terroir* in their collection. But to us, it's so vital just because we live in it. We know what's going on here. So we're going to protect it.

Conclusion

Growers, environmentalists, and residents throughout Sonoma County agree that both vineyards and redwoods have cultural and economic value. But these groups feel more strongly about the value of forests; many believe redwoods are an icon of the county. They recognize the environmental impacts of land conversion and the importance of habitat preservation. While vineyards certainly play an important role in the county's economy, they also contribute to the degradation of Sonoma's watersheds.

The conflict over the Artesa and Preservation Ranch projects is not a binary vineyard versus nature debate. In fact, some respondents to this survey would approve cutting down a few trees for vineyards. All, however, oppose clear-cutting. Many would support legislation to regulate tree removal. Gualala now awaits the Board of Supervisors' verdict on a tree removal ordinance and approval for Artesa's project. Environmentalists and residents of the area hope that the Board will consider the local perspectives of a landscape that is on the verge of significant alteration. As their decision that will likely set a precedent for future forest-to-vineyard conversion policy, they must decide whether the potential short-term economic gains are worth the environmental and cultural losses.

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APPENDIX A

Rating-scale survey

To what degree do you agree or disagree with the following statements?

1. Vineyards are essential to the economy of Sonoma County.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

2. Vineyards are culturally important to Sonoma County.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

3. Coastal redwoods and oak woodlands have economic value in Sonoma County.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

4. Coastal redwoods and oak woodlands are culturally important to Sonoma County.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

5. Vineyard development is more economically valuable than habitat preservation.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

6. Under careful land management, existing vineyards do not have negative environmental impacts.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

7. Converting forested land to new vineyards has negative environmental impacts beyond habitat loss.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

8. Sonoma County has a responsibility to preserve forests on which Native American sites are located.

Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
7	6	5	4	3	2	1

How supportive would you be of the following scenarios in Sonoma County?

9. A vineyard removes a few scattered redwood or oak trees to plant new vines.

Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
7	6	5	4	3	2	1

10. A vineyard clear-cuts over 10 acres of continuous forest to plant new vines.

Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
7	6	5	4	3	2	1

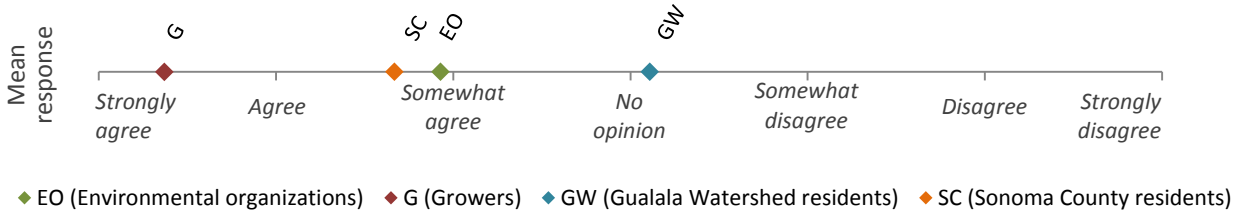
11. Sonoma County prohibits all vineyard plans that clear-cut continuous forest.

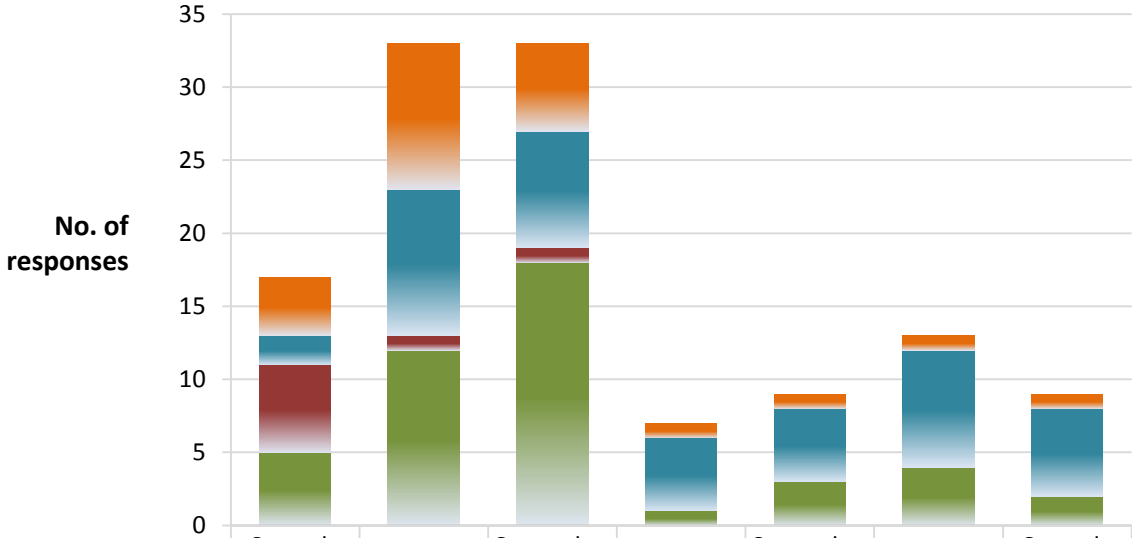
Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
7	6	5	4	3	2	1

APPENDIX B

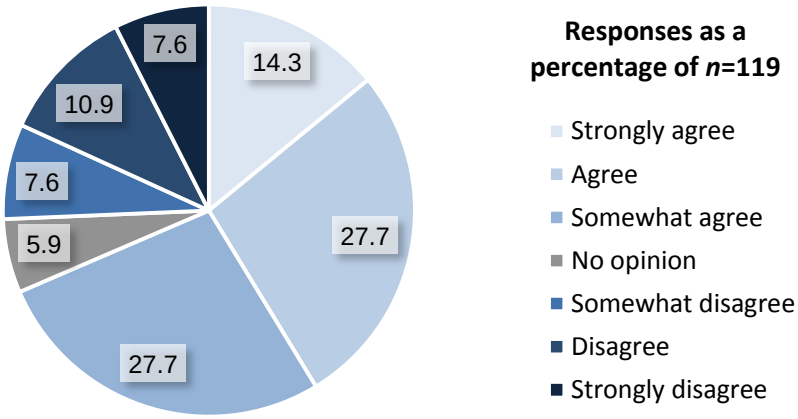
Economy *(Statements 1, 3, and 5)*

1. Vineyards are essential to the economy of Sonoma County.

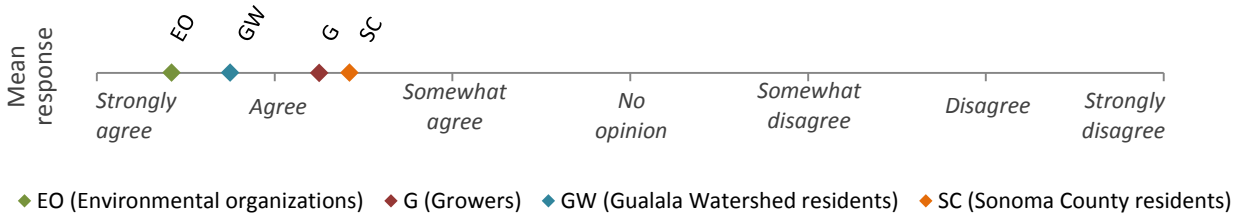


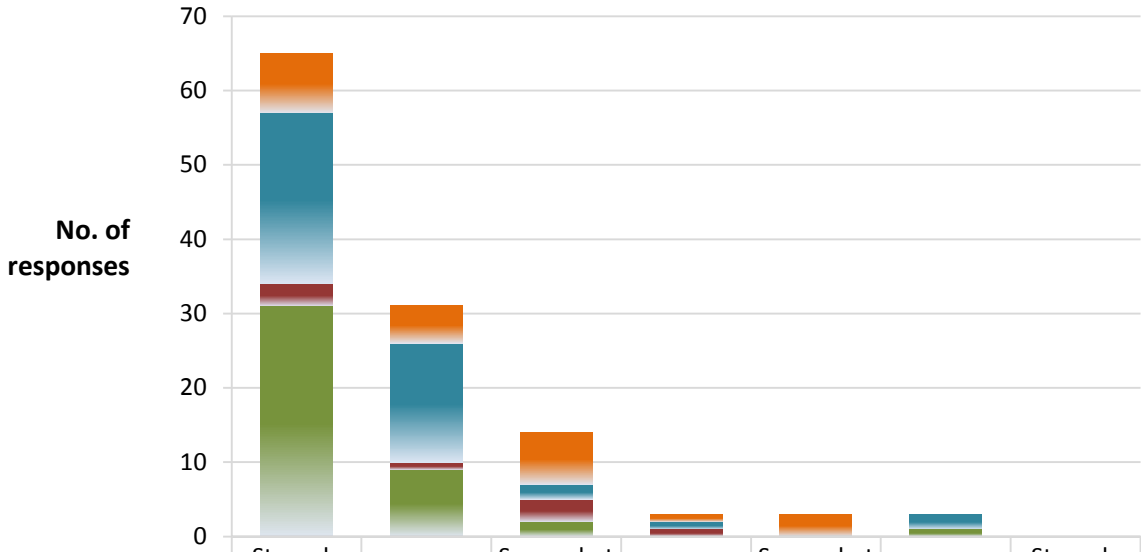


	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	4	10	6	1	1	1	1
Gualala residents	2	10	8	5	5	8	6
Growers	6	1	1	0	0	0	0
Environmentalists	5	12	18	1	3	4	2

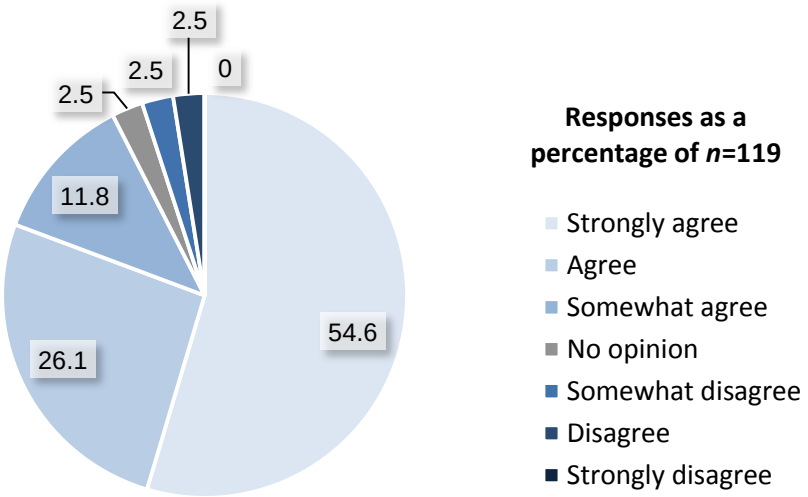


3. Coastal redwoods and oak woodlands have economic value in Sonoma County.

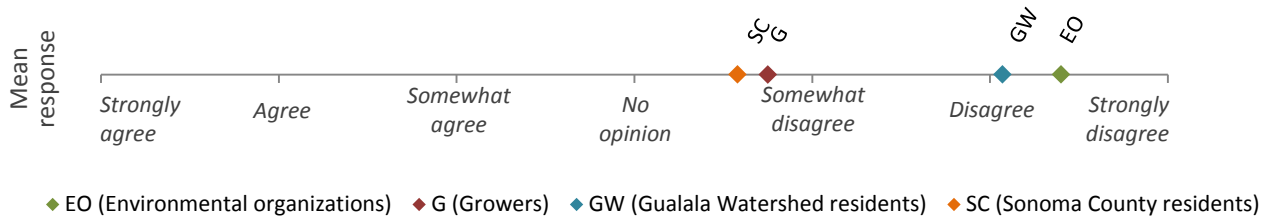


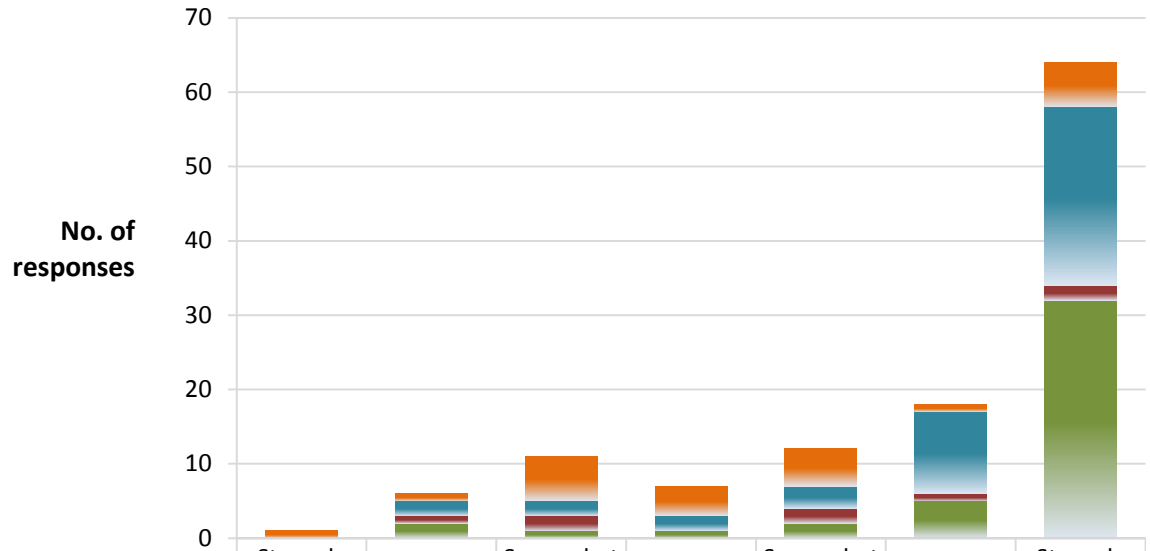


	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	8	5	7	1	3	0	0
Gualala residents	23	16	2	1	0	2	0
Growers	3	1	3	1	0	0	0
Environmentalists	31	9	2	0	0	1	0

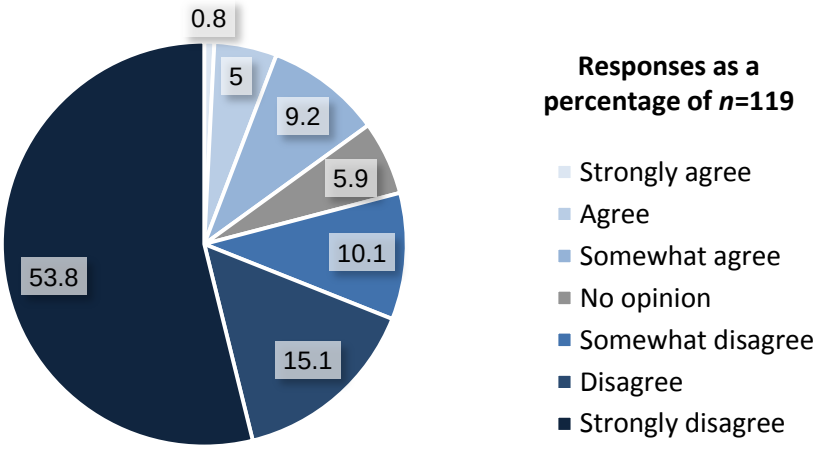


5. Vineyard development is more economically valuable than habitat preservation.





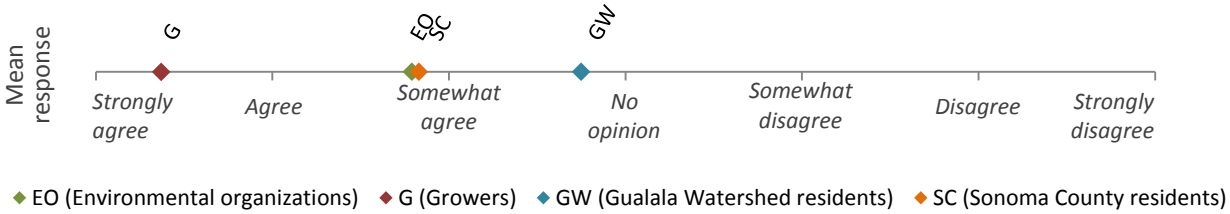
	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	1	1	6	4	5	1	6
Gualala residents	0	2	2	2	3	11	24
Growers	0	1	2	0	2	1	2
Environmentalists	0	2	1	1	2	5	32

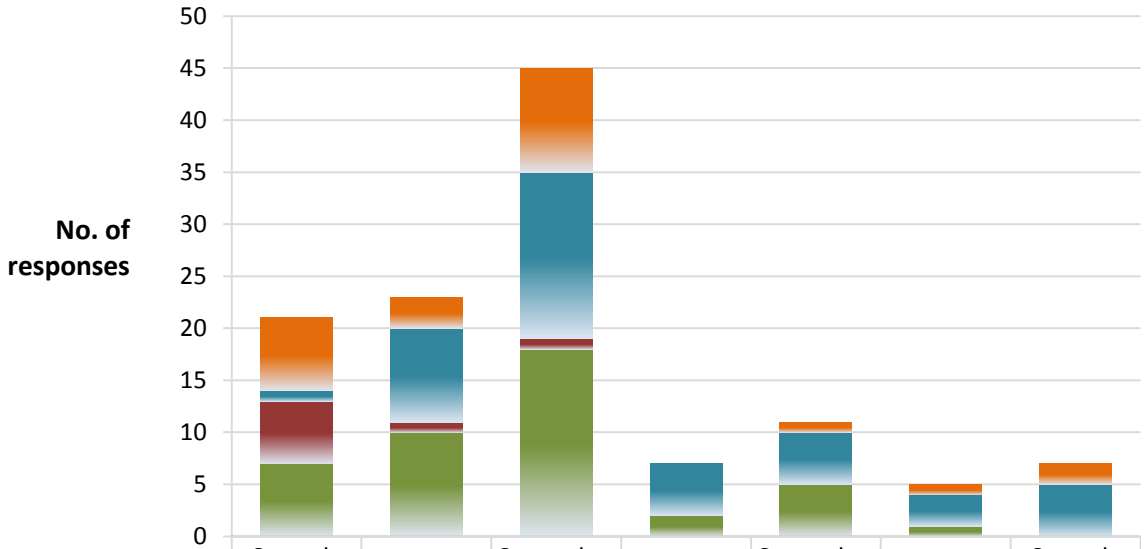


APPENDIX C

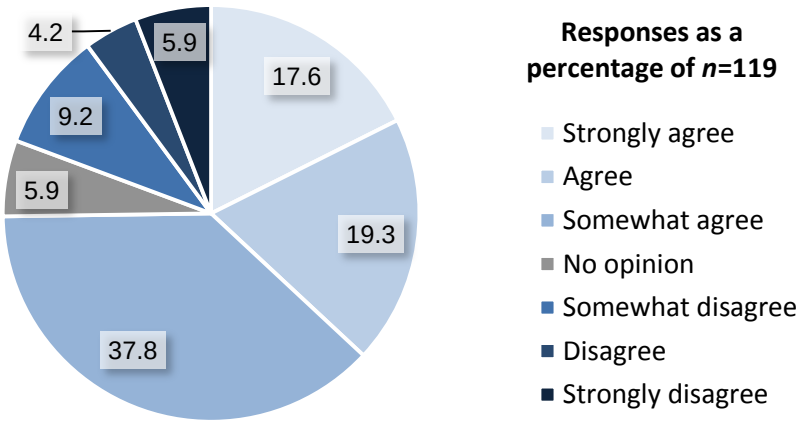
Culture *(Statements 2, 4, and 8)*

2. Vineyards are culturally important to Sonoma County.

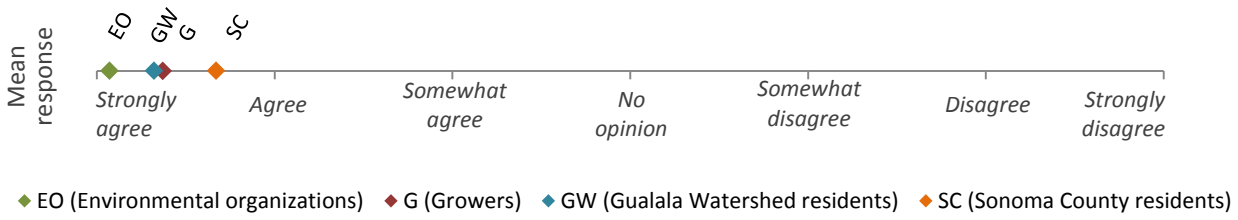


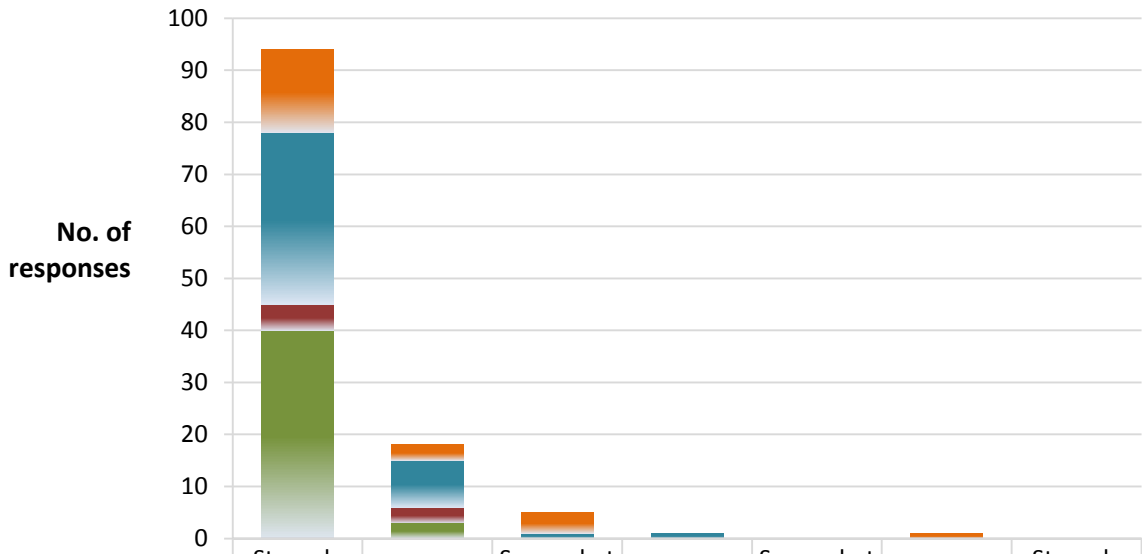


	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	7	3	10	0	1	1	2
Gualala residents	1	9	16	5	5	3	5
Growers	6	1	1	0	0	0	0
Environmentalists	7	10	18	2	5	1	0

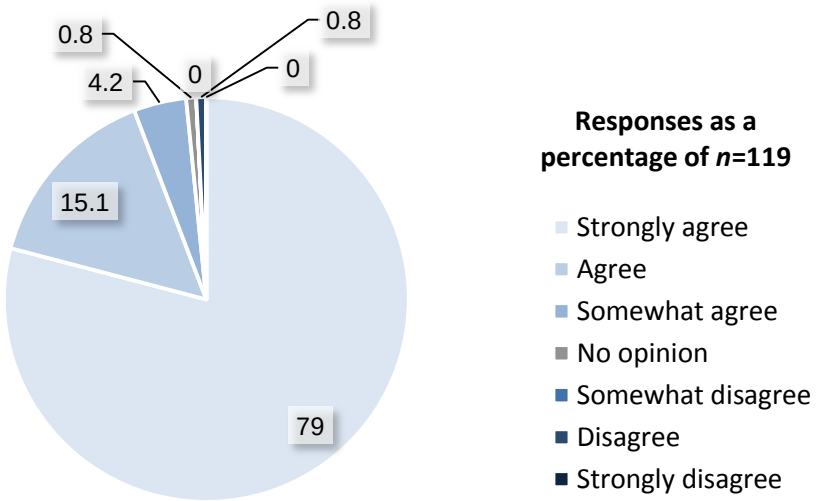


4. Coastal redwoods and oak woodlands are culturally important to Sonoma County.

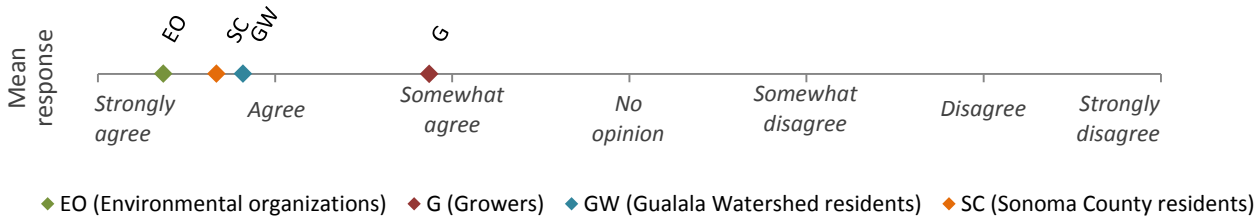


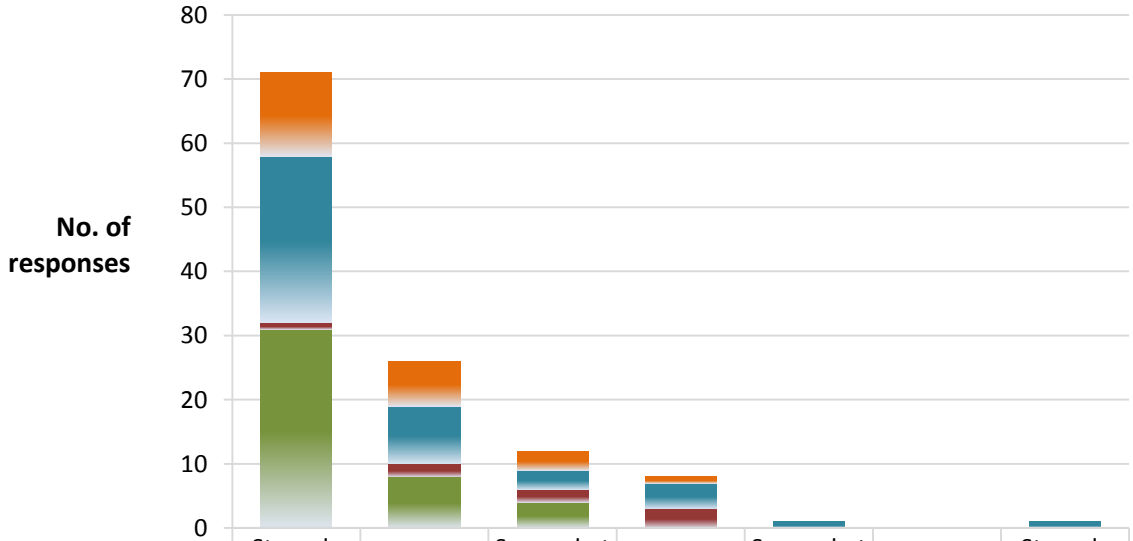


	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	16	3	4	0	0	1	0
Gualala residents	33	9	1	1	0	0	0
Growers	5	3	0	0	0	0	0
Environmentalists	40	3	0	0	0	0	0

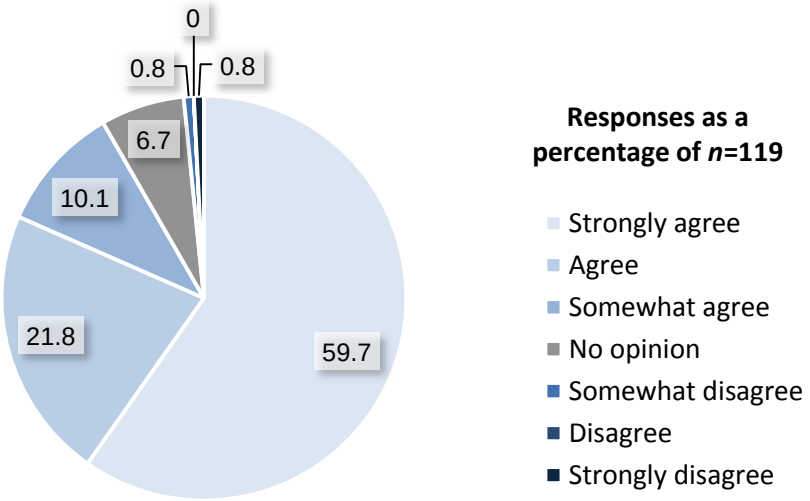


8. Sonoma County has a responsibility to preserve forests on which Native American sites are located.





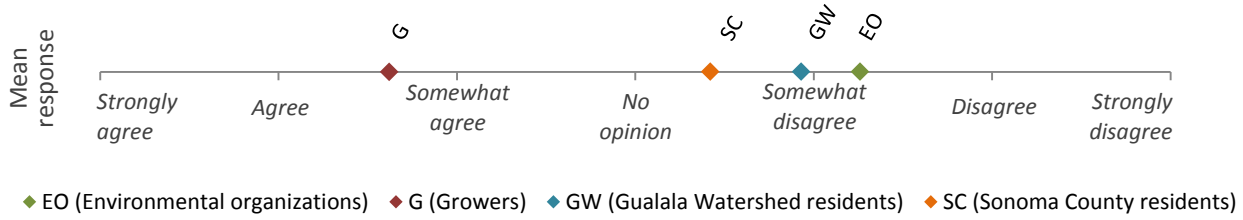
	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	13	7	3	1	0	0	0
Gualala residents	26	9	3	4	1	0	1
Growers	1	2	2	3	0	0	0
Environmentalists	31	8	4	0	0	0	0

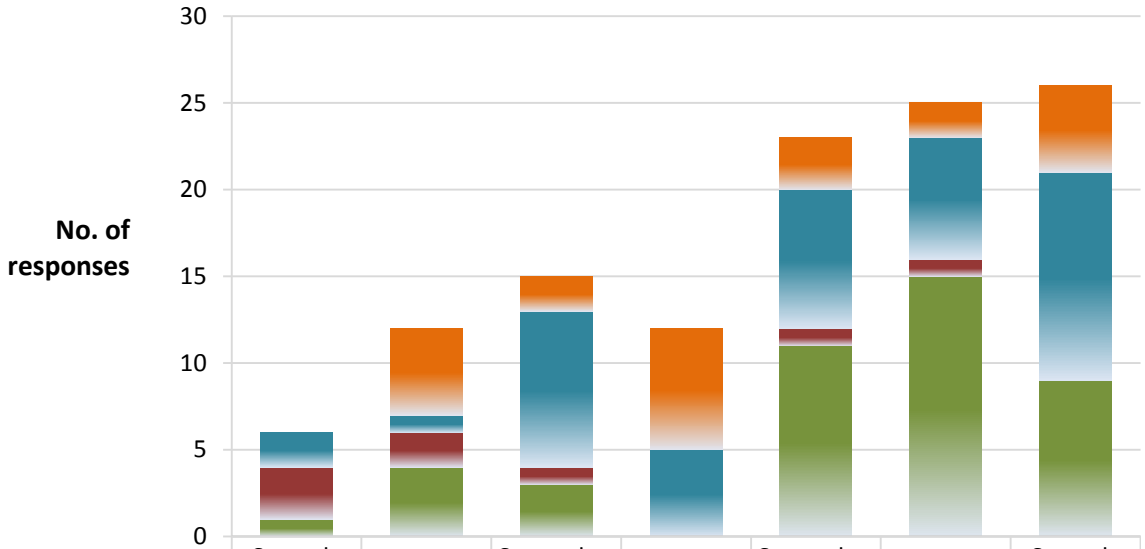


APPENDIX D

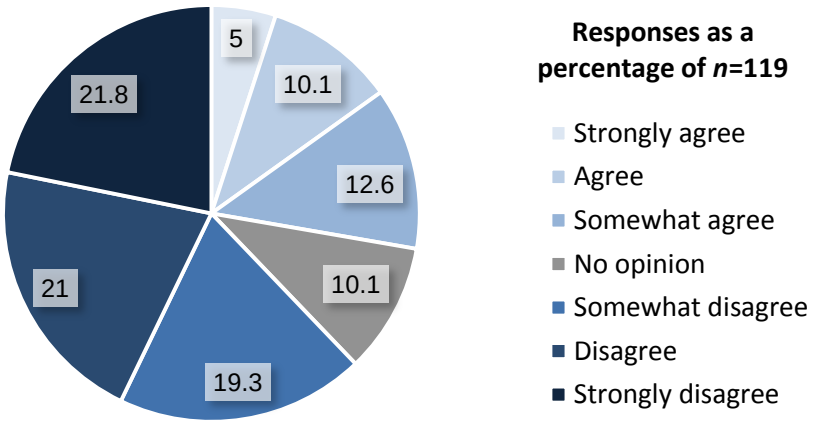
Environment *(Statements 6 and 7)*

6. Under careful land management, existing vineyards do not have negative environmental impacts.

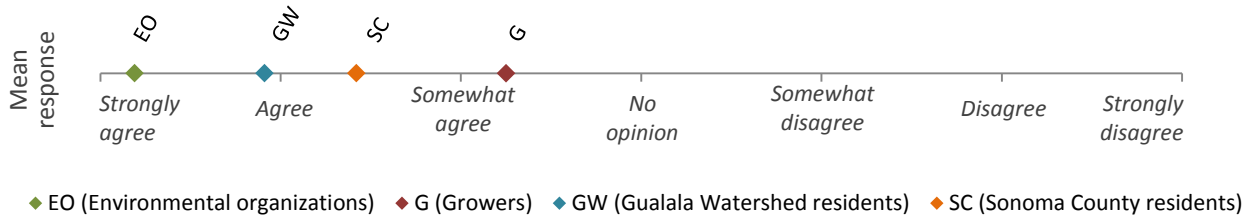


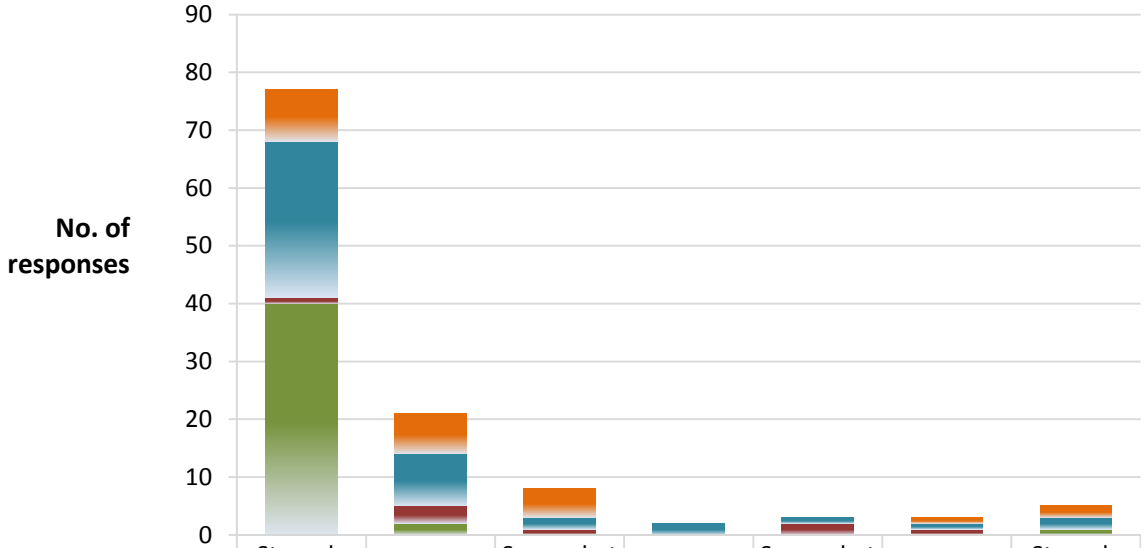


	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	0	5	2	7	3	2	5
Gualala residents	2	1	9	5	8	7	12
Growers	3	2	1	0	1	1	0
Environmentalists	1	4	3	0	11	15	9

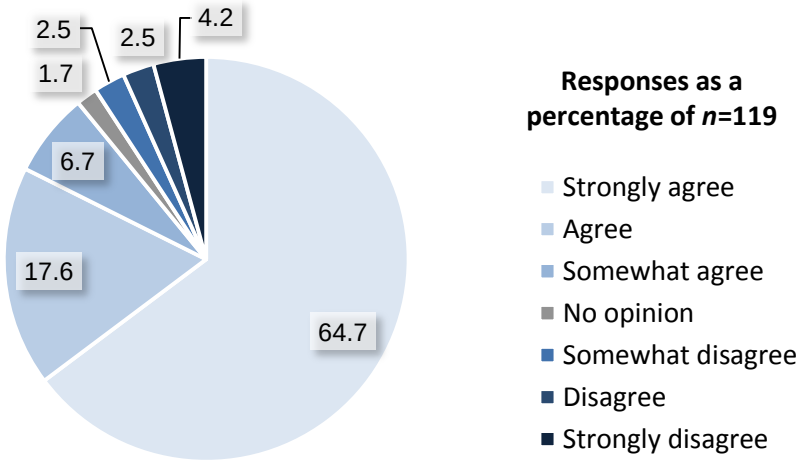


7. Converting forested land to new vineyards has negative environmental impacts beyond habitat loss.





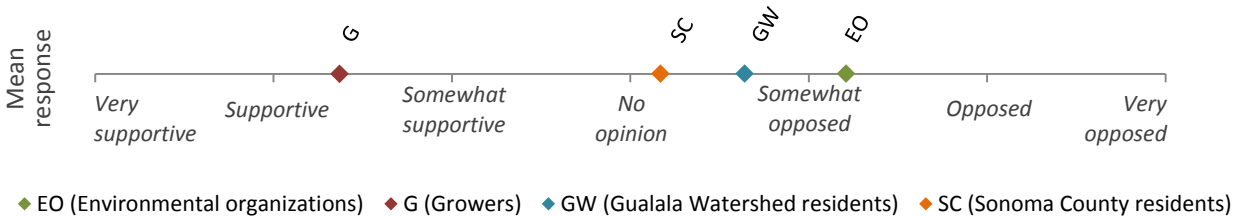
	Strongly agree	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree	Strongly disagree
Sonoma residents	9	7	5	0	0	1	2
Gualala residents	27	9	2	2	1	1	2
Growers	1	3	1	0	2	1	0
Environmentalists	40	2	0	0	0	0	1

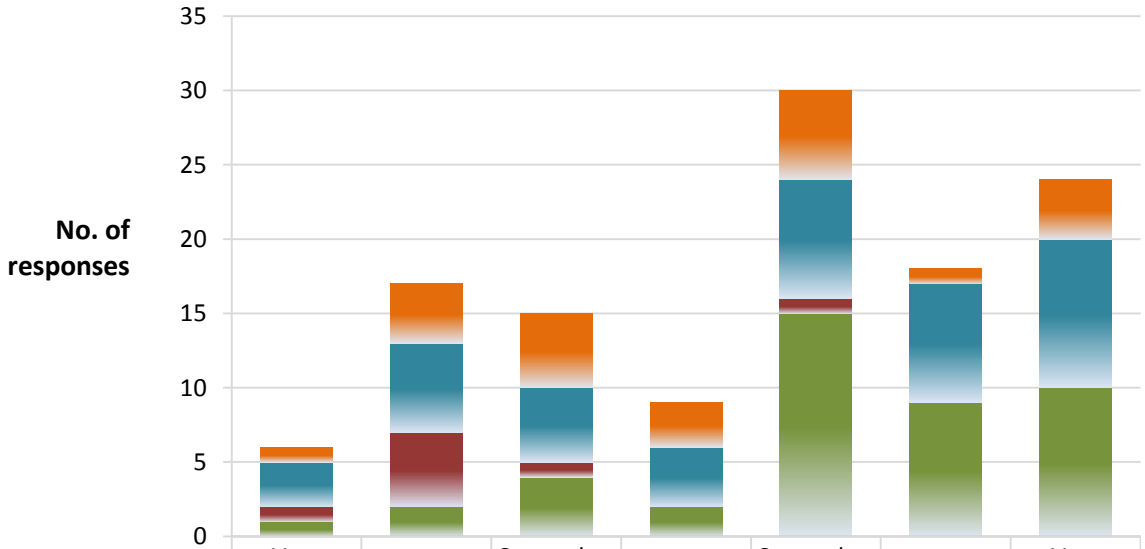


APPENDIX E

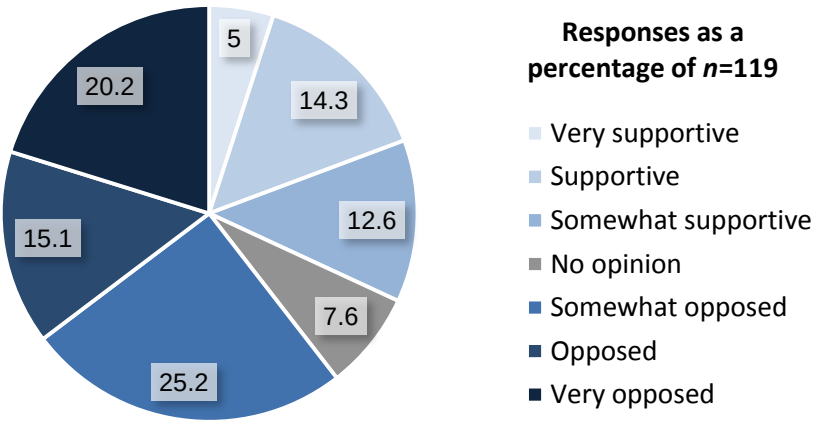
Land-use *(Statements 9-11)*

9. A vineyard removes a few scattered redwood or oak trees to plant new vines.

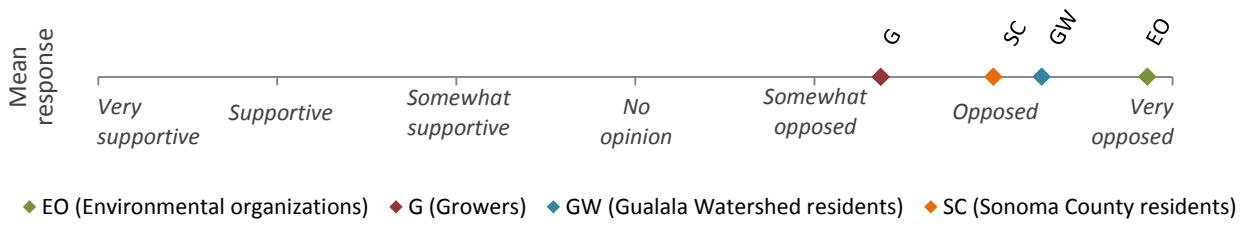


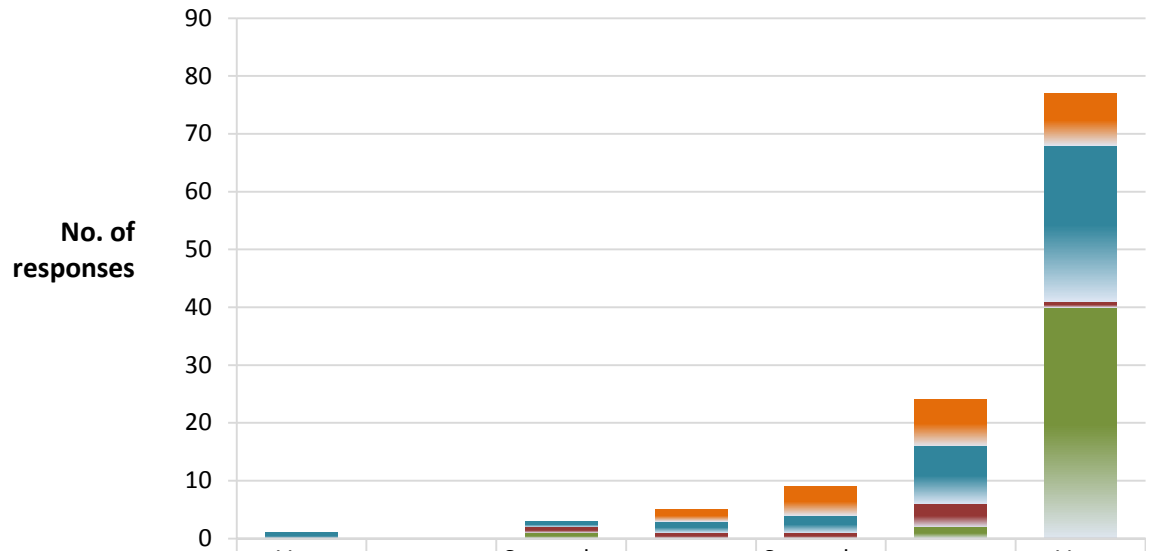


	Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
Sonoma residents	1	4	5	3	6	1	4
Gualala residents	3	6	5	4	8	8	10
Growers	1	5	1	0	1	0	0
Environmentalists	1	2	4	2	15	9	10

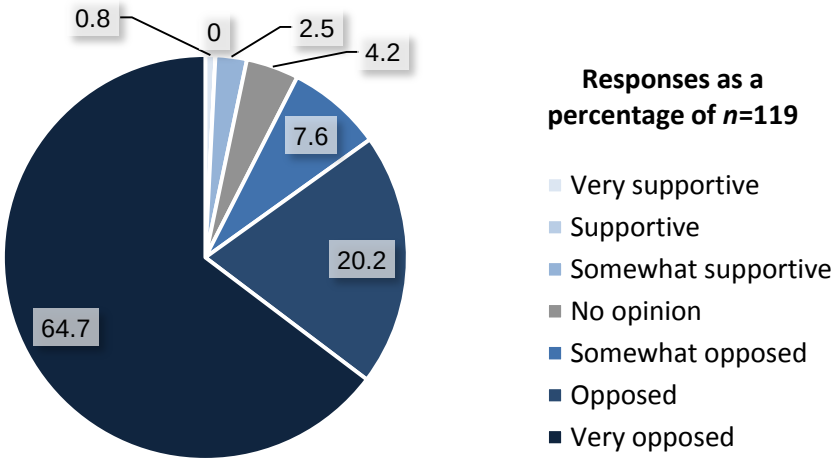


10. A vineyard clear-cuts over 10 acres of continuous forest to plant new vines.

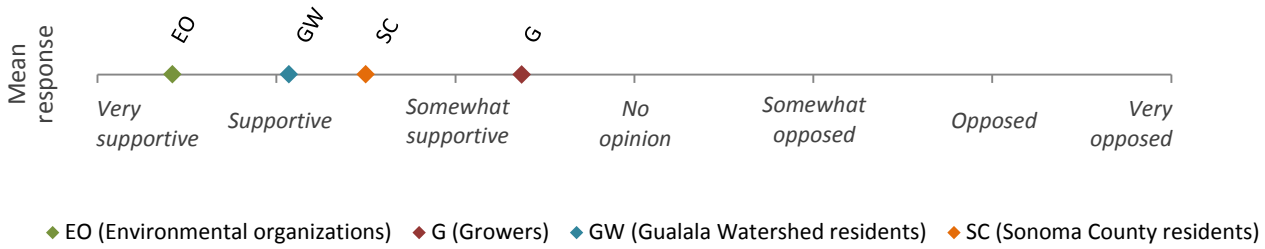


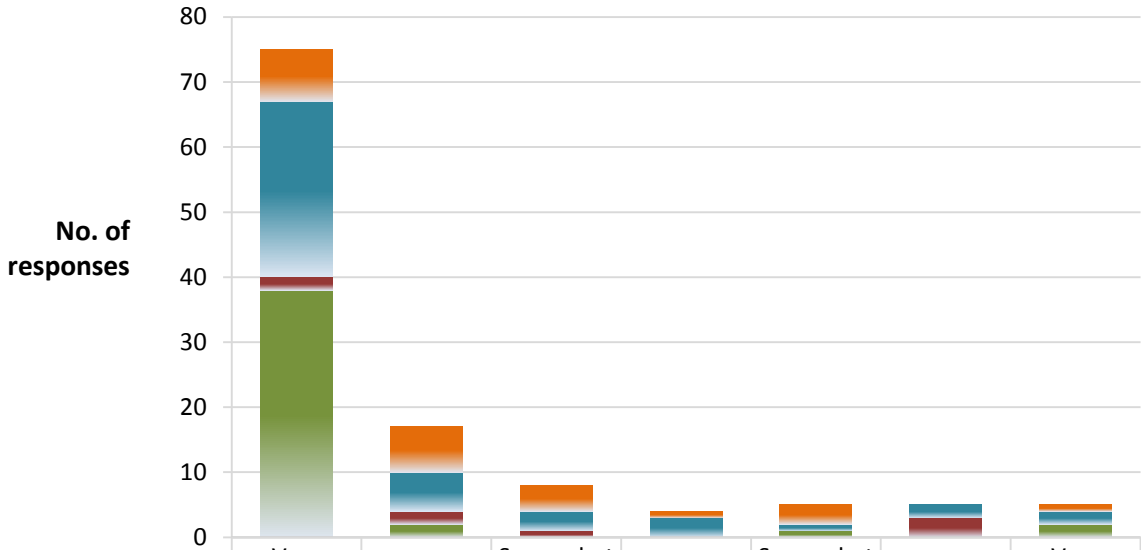


	Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
Sonoma residents	0	0	0	2	5	8	9
Gualala residents	1	0	1	2	3	10	27
Growers	0	0	1	1	1	4	1
Environmentalists	0	0	1	0	0	2	40

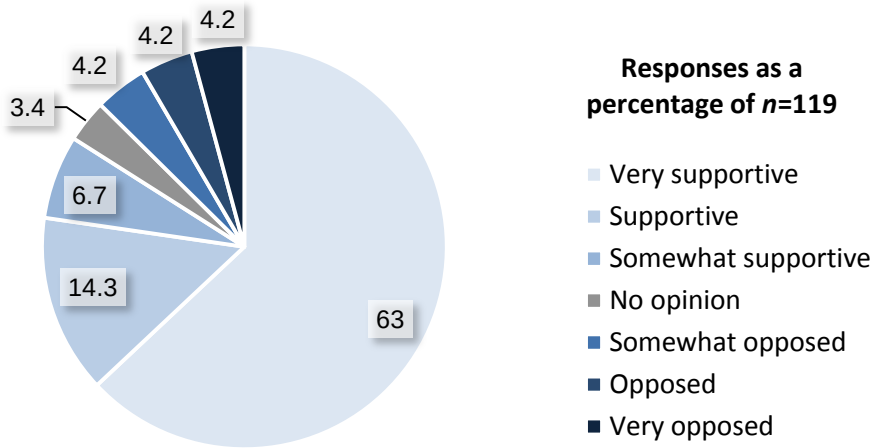


11. Sonoma County prohibits all vineyard plans that clear-cut continuous forest.





	Very supportive	Supportive	Somewhat supportive	No opinion	Somewhat opposed	Opposed	Very opposed
Sonoma residents	8	7	4	1	3	0	1
Gualala residents	27	6	3	3	1	2	2
Growers	2	2	1	0	0	3	0
Environmentalists	38	2	0	0	1	0	2



APPENDIX F

Selected responses to open-ended questions

Questions	*Responses*	*Respondents (%)*
1. *How do rural landscapes differ from natural landscapes?*	There is no difference	10.6
	The two can coexist	7.6
	Natural landscapes no longer exist	3.0
	Defined rural using:	
	Human activity and/or manmade elements	34.8
	Agriculture/farming, specifically	28.8
	Negative description (i.e. polluted, degraded, disrupted)	15.2
	Defined natural using:	
	Indigenous species/biodiversity	24.2
	Untouched, pristine	10.6
2. *Of the different landscapes in Sonoma County, which do you feel is the most iconic?*	Vineyards (no mention of redwoods)	5.6
	Redwoods (no mention of vineyards)	35.2
	Both vineyards and redwoods, specifically	8.5
	Oak woodlands	16.9
	The coast	21.1
	"Rolling hills"	8.5
	A blend between natural and agricultural spaces	11.3
3. *How much do you think vineyards affect water quality and stream habitats?*	Dependent on the grower or use of organic practices	14.1
	Not as much as people tend to believe	6.4
	Main concerns:	
	Chemical pollutants (pesticides, fertilizers)	37.2
	Abuse of the water supply	29.5
	Erosion/sedimentation	29.5
	Stress on fish populations	11.5
4. *How much have you heard about these proposals? How do you feel about the projects?*	Have heard nothing/not enough/very little	8.0
	Opposed to projects	90.7
	Opposed to projects (excluding respondents who have not heard about them)	98.6

Note: as many answers included multiple elements, percentages will not add up to one hundred