Policy Analysis related to the Conversion of Native Habitat to Vineyard: Sonoma County's Vineyard Erosion and Sediment Control Ordinance as a Case Study

Adina M. Merenlender, Colin N. Brooks, and Gregory A. Giusti

Abstract

Many of the policy deliberations on the environmental effects of new vineyard development revolve around the potential application of the California Environmental Quality Act. In particular, some forest and oak woodland conversion has resulted from recent vineyard expansion. Timberland conversions receive CEQA review through the Forest Practice Act (FPA), whereas clearing of oak woodlands and shrub communities generally do not. While a collection of county and city policies target a wide array of oak conservation objectives, these were not generally designed to address land-use conversion resulting from agriculture. In response to the need for more environmental oversight for vineyard development, county governments have developed various regulatory approaches. We used a geographic information system to map the areas in Sonoma County that fall into three levels of regulation with different sets of requirements defined by Sonoma County's Vineyard Erosion and Sediment Control Ordinance. The purpose here was to map and quantify the areas that would be more and less affected by new regulation in order to better evaluate the policy and assist decision-makers.

Vineyards are expanding rapidly in California's north coast due to a booming wine market. An increasing proportion of vineyard development is occurring in oak woodlands, one of the most biologically diverse forest types in the state (see Merenlender ms 1668). The removal of native vegetation and other activities associated with vineyard development in previously undeveloped areas can result in negative environmental impacts. Therefore, vineyard owners are under scrutiny from concerned communities and government agencies interested in protecting natural resources.

Generally, agriculture, with the exception of forestry, has not been required to undergo environmental impact review under the California Environmental Quality Act (CEQA). The agricultural community would like to continue to avoid CEQA review in order to minimize regulatory oversight, and the time and money that may be required to comply with the CEQA. At the same time, commercial harvesting of recognized timber species must comply with state regulations that include environmental review, tree removal in non-commercial forest types such as oak woodlands are not subject to the same review process. While local government is encouraged by the Board of Forestry to address oak woodland conservation, most existing city and county policies provide inconsistent protection for the myriad of natural resources associated with this habitat type.

In response to concerns over native vegetation removal and the lack of environmental review for new hillside vineyards, local regulatory policies addressing vineyard conversion are rapidly evolving to prevent hillside erosion and protect natural habitat. In order to examine the changing regulatory environment, this paper reviews

how various counties are responding to protect natural resources in light of extensive vineyard expansion. For a more in-depth examination of these types of local regulations, we used a geographic information system (see GIS box in ms 1668) to analyze Sonoma County's recently adopted Vineyard Erosion and Sediment Control Ordinance.

Existing protection under the California Environmental Quality Act

In 1970 the CEQA was adopted as a statute requiring state, county, and city governments to assess the potential for negative environmental impacts associated with proposed private developments. The CEQA review process is only applied to projects that need discretionary approval by local government. The process involves completion of an Environmental Impact Report (EIR) that identifies any significant environmental impacts and mitigation of those the impacts, if feasible. If the agency determines a project will not have any negative environmental effects, then it must adopt a negative declaration.

When native vegetation is removed, government approval including CEQA review, is generally only required for commercially recognized trees (ie. conifers such as redwoods and Douglas fir and a few hardwood species that grow with conifers). Historically, commercial timberlands have been protected while woodlands were not because of economic considerations, not ecological ones. The Z'berg-Nejedly Forestry Practice Act (FPA) of 1973 was designed to protect natural resources associated with timberlands. Under the Act, timberlands are limited to non-federal lands available for, and capable of, growing a crop of trees of any commercial species. The Board of

Forestry further defined “commercial species” to include most economically important conifers and some hardwood species, when growing on timberland.

The FPA, through a separate set of Forest Practice Rules, recognizes the need for the protection of watershed elements by establishing minimum standards for stream zone protective widths, archaeological sites, soil stability and cumulative effects. These requirements are mandatory for any landowner who wishes to engage in timber harvesting of more than three acres. The Act in combination with the Rules is designed to identify and mitigate any potential negative impacts from timber harvesting through the Timber Harvest Plan process that is a substitute for the EIR process under CEQA.

In reviewing proposals for forest conversion to intensive agriculture, the California Department of Forestry and Fire Protection (CDF), has jurisdictional responsibility to determine any associated significant environmental impacts. Since the Forest Practice Act was adopted in 1973, CDF has approved various conversion permits for vineyard development within the Coast Forest District (six north coast counties). Sonoma County has had eight approved conversions covering a total of 151 acres, Mendocino had three covering 380 acres, and Napa has had 13 covering 319 acres; there are others pending approval. These acre figures are often less than the total area being planted because a conversion permit is only required for the specific areas within the project that include commercial timber species. The Coast Forest District did request an EIR for two proposed conversions, which resulted in one company electing to drop their request; the other did the same after public criticism of the draft EIR submitted. In response to public criticism of the conversion permit process, the director of CDF stated that there will be greater enforcement of environmental laws and stricter review of

forestland-conversion applications (Press Democrat, 11/9/99). This suggests that vineyard conversions proposed on timberlands routinely could be subject to more rigorous environmental review in the future.

Oak woodlands, shrub communities, pure hardwood stands, and other non-timber species are not afforded protection under the FPA, and thereby, not given statewide consideration under CEQA. This has led to some confusion because, when found with conifers, black and Oregon oak (*Quercus kelloggi and Q. garryana*) are recognized as commercial species and therefore regulated by CDF. However, thousands of acres of native vegetation, including hardwoods such as valley oak, coast live oak, and madrone (*Q. lobata*, *Q. agrifolia*, and *Arbutus menziesii*), have been removed to establish new vineyards throughout coastal California without a systematic environmental review process prior to conversion. While comprehensive environmental review does not routinely take place prior to vineyard development, the land owners must comply with other environmental regulations including the Porter Cologne Water Quality Act (WQA) and the Endangered Species Act. They must also obtain a permit from the California Department of Fish and Game (CDFG) for streambed alterations and, where applicable, follow the rules established by specific habitat conservation plans.

Inconsistent application of CEQA

Under the FPA, only forests that have been identified as economically important for timber production receive oversight meant to protect ecological values. This leads to inconsistent environmental protection practices. An example of this is the protection of

salmonid species in northwestern California. Under the current Forest Practice Rules, salmon and steelhead are afforded some level of protection when they enter freshwater habitat located in a conifer forest setting. In many cases, salmon continue their upstream migration past coastal conifer forests and ultimately complete their journey in a predominantly oak woodland habitat type. This scenario is true for fish in the Russian, Navarro, Eel, Klamath, Smith and Sacramento River systems. However, as the fish move from one forest type to another, the level of protection is not contiguous, resulting in only a minimal level of protection for a small portion of the overall habitat. For example, the lower part of the Russian River is surrounded by forestland where timber harvest and conversion in these watersheds are subject to the FPA. Whereas in the upper Russian River and its tributaries which run through oak woodland habitat, where environmental protection is limited to streambed alterations and water quality violations.

At the local level

In the absence of a standard state wide approach to natural resource conservation in hardwood rangelands, local government approaches to oak and native vegetation removal vary greatly from region to region. Since 1993, the Board of Forestry has encouraged local governments to develop conservation policies to protect oak woodlands. In response, 31 counties have adopted some kind of land-use planning process, voluntary guidelines, or ordinances to protect oaks or mitigate oak removal. This collection of county resolutions, ordinances, evaluation committees, and monitoring efforts target an array of conservation objectives such as habitat conservation, tree retention, and land management practices. In many instances, the adopted mechanisms have focused on a single resource issue such as

water quality or heritage tree preservation, thus making it difficult to evaluate their effectiveness in protecting oak woodland habitat.

Oak woodlands span much of California, are privately owned, and support an enormously diverse suite of land use, therefore a uniform regulatory approach is unlikely to protect the resource effectively. The University of California's Integrated Hardwood Range Management Program (http://danr.ucop.edu/ihrmp) offers educational materials and technical assistance to county governments, Resource Conservation Districts, and local committees on oak woodlands to assist the development of oak conservation policies. However, adoption of comprehensive oak conservation strategies through the local political process is difficult. Often, the local initiatives that have been adopted are not designed to address land-use conversion resulting from agriculture.

The environmental impacts that can result from agricultural activities on non-timberlands are not likely to be addressed through the CEQA review process or by local oak woodland protection initiatives. But in small town hall meetings such as those attended by over 200 people each in Occidental, Sonoma County in October 1999 and Boonville, Mendocino County in February 2000, concerns over environmental impacts resulting from agricultural expansion have been expressed. In response to such public interest, some counties have enacted ordinances to specifically address the lack of existing environmental regulations for new vineyard developments. While vineyard development can have a wide array of adverse effects on forests, watersheds, wetlands, fish, and wildlife (Garrison 2000), local policies are usually designed to conserve soil and protect water quality. These new local policies do require that farmers register new vineyard developments with the county, representing some of the first limitations on

agricultural development in California. In all cases, such policies originated with the work of committees representing diverse interests including agriculture and environment.

Several cases illustrate how vineyard development policies have progressed at the local level. In November 1998 there was a narrowly defeated oak woodland protection ballot initiative in Santa Barbara County that led to a renewed interest in finding a compromise between agricultural and environmental interest groups over oak removal. A set of guidelines to mitigate the environmental impacts of oak tree removal and to maintain viable oak habitats was discussed in a collaborative process that brought together people with diverse interests through a series of workshops. Subsequently, the Board of Supervisors directed the planning department to develop local regulations based on the results of the workshops that would set thresholds for oak removal depending on the parcel size and species proposed for cutting. An ordinance based on these thresholds is under environmental review as part of the CEQA process and will be presented to the Board of Supervisors by Fall, 2000. Santa Barbara County also has general resource protection in place through a grading ordinance. This ordinance requires an erosion control plan or grading permit if the potential for a significant environmental impact may occur as a result of new agricultural grading, or when certain technical thresholds are exceeded. For example, grading within 50 feet of the top of stream bank, on slopes greater than 30%, or where cuts or fills exceed three vertical feet requires a permit. In an attempt to replace the "significant environmental impact" language with simpler, more specific regulatory guidelines, the planning department has also been directed to develop a new resource protection ordinance to safeguard the county's most critical habitat types

(e.g., vernal pools). The proposed revisions to this policy are currently being discussed in public workshops.

Napa County has conservation regulations aimed at vineyard development intended to minimize physical disturbance to a site, prevent soil erosion, improve water quality, preserve riparian areas, and avoid development of steep slopes. The regulations were put into place in 1991 and require setbacks from stream corridors of 35 feet for flat areas and 105 feet and greater for slopes over 40%. Napa County also requires that an erosion control plan be submitted prior to vineyard planting. The property owner or designee can develop these plans if pre-approved by the Napa County Resource Conservation District or a licensed professional. This means that the approval of these erosion control permits is at the discretion of the county. In September 1999 the Sierra Club filed a lawsuit against Napa County stating that, through the erosion permitting process, the County is making discretionary decisions on erosion control plans for proposed vineyards less than 30% slope without applying CEQA. They also filed suits against some land owners who were developing vineyard on steep hillsides. Shortly after these suits were filed, the County did not continue to approve erosion control plans without CEQA review. The suits were settled in April 2000 and resulted in the County's confirmation that discretionary review was in place without CEQA review and agreeing to pursue studies on the application of CEQA for these cases. The Sierra Club also settled with the private parties following an agreement that vineyards on slopes greater than 50% and that are not yet entirely graded for planting would receive environmental review through the CEQA process.

Lake County has a set of voluntary vineyard and land-clearing guidelines that were established primarily to address erosion impacts on the water quality of Clear Lake. This non-binding review process applies only to conversions from existing agricultural land (continuously in agricultural production during the past ten years) to vineyard and has been implemented on a trial basis. In addition, the County has a grading ordinance that applies to clearing more than 10,000 square feet of native vegetation among other types of work and is subject to review under the CEQA.

In December 1999 Lake County required that a proposal which would clear 100 acres of native vegetation including blue oak (*Quercus douglasii*) and chaparral habitat, be subject to a focused EIR. This is the first vineyard development that was obliged by a County to produce a focused EIR. A focused EIR requires that a specific subset of potential environmental impacts be analyzed rather than the more comprehensive environmental impact studies mandated for a full EIR.

In order to avoid CEQA review, counties and cities have restricted their review process to ministerial actions only, such as a best management checklist and verification that the requirements were met. Standardized checklists of what should and should not be done for all vineyard developments to protect natural resources would be difficult to develop given the differences in site characteristics that exist across California's wine grape growing areas. Therefore local regulators and resource conservation districts generally argue that each site is different and requires flexibility in determining the appropriate techniques to prevent soil erosion and protect water quality.

To avoid the application of the CEQA for vineyard development, a bill (SB1810) was introduced in the California legislature in February 2000. If passed, proposals to

plant or replant vineyards where the local jurisdiction had adopted a conservation ordinance would be exempt from the CEQA. This bill was put aside after opposition emerged.

While some counties are trying to protect a limited suite of natural resources and address certain land use activities, few have enacted comprehensive measures that would cover the range of environmental impacts that may result from oak woodland conversion. The inconsistencies in environmental protection throughout the oak regions of California will continue to fuel debate as land-use practices increase in scope and magnitude.

Sonoma County's Vineyard Erosion and Sediment Control Ordinance: A case study

Recent occurrances in Sonoma County represent an example of how local policies affecting vineyard development are deliberated and developed. In February 2000, Sonoma County adopted a vineyard erosion and sediment control ordinance that set new standards for the development of new vineyards on certain slopes, based on a proposal developed by a committee representing diverse interests. Prior to adoption, however, in response to concerns from the agricultural community and suits filed in Napa County, the Board of Supervisors deleted the provision for Agricultural Commissioner review. Instead, under the adopted ordinance, erosion control plans are accepted only if certified by a civil engineer. This makes the ordinance processes ministerial rather than discretionary and therefore avoided review under the CEQA.

The Sonoma ordinance assigns new plantings of vineyards on slopes lower than 15% (10% for highly erodible soils) as "Level I" and requires a 25ft stream set back, as well as a notice that must be submitted to the Agricultural Commissioner's Office. Level

II requires a certified erosion control plan for sites on slopes averaging between 15-30% slope (10-15% for highly erodible soils) and can be prepared by any qualified person. Level III requires a certified erosion control plan that must be prepared by a qualified professional for average slopes from 30-50% (15% to 50% for highly erodible soils). Vineyards that fall in levels II and III also must have a 50ft set back from the top of the bank. Development on slopes greater than 50% is prohibited, with certain limited exceptions. Seven soil types are specified in the proposed ordinance as highly erodible. Replanting vines is treated slightly differently in the ordinance. However, since our research is focused on the potential impacts of future vineyard expansion, we did not address the replanting levels. This ordinance does not address upland vegetation removal and other habitat conservation issues.

Spatial Analysis

The GIS that we developed for vineyards across Sonoma County's landscape (see Merenlender ms 1668) provides a useful tool for mapping and evaluating regulatory scenarios. We used a GIS that includes vineyard maps, topography, and soils information for the major appellation areas to map the areas in Sonoma County that fall into the three levels defined by the Vineyard Erosion and Sediment Control Ordinance. The purpose here was to examine areas that would be more and less affected by this policy and quantify the amount of current and possible future vineyard areas that fall into the various levels of regulatory requirements.

We mapped areas that fall into each regulatory level for new plantings defined in the Sonoma County ordinance (Fig 1). Where we have digital soils data, these levels

reflect whether or not the site is on erodible soils; otherwise, the site is analyzed based on slope class alone. Because earlier analysis done without the soil data produced almost identical results, the results presented are not expected to change significantly with addition of more soils information. This is due to the relative rarity of the soil types identified as highly erodible. For the entire 1,015,179 acres of Sonoma County, 38% falls into Level I, 23% into Level II, 28% into Level III, and 11% into slopes greater than 50%. Existing vineyards can be analyzed, and more interestingly, we can estimate how much and where future vineyard development will be impacted by the ordinance. We have vineyards mapped through 1997 (see Merenlender ms 1668) which allowed us to calculate how much of this vineyard land would fall into the various regulatory levels if the policy had been in place at the time these vineyards were established. In this case less than 1% of the vineyards established prior to 1997 were planted on sites that would have been entirely restricted by the proposed policy (slopes greater than 50%), very few (5%) would require an erosion control plan prepared by a qualified civil engineer or other professional along with a 50ft set back from the top of the stream bank (Level III), and only slightly more (11%) would have had to file a plan prepared by a qualified person and meet the 50ft set back(Level II category) (Fig 2).

In order to estimate the percent of plantable acreage left that falls under this ordinance, we first calculated the amount of acreage that was planted between 1990 and 1997 to be 11,663 acres (see Merenlender ms 1668). We then made the assumption that the same number of acres will be developed from 1998-2005 -- a very conservative estimate of growth since projects totaling close to 9,000 acres were submitted to the Agricultural Commissioner's office at the end of 1999 (Press Democrat, January 15,

2000). Using the model that we developed to map undeveloped areas that are similar to existing vineyards that we developed (see Heaton and Merenlender this issue), we mapped the most probable 11,663 acres as yet undeveloped according to our data. These areas that are likely to be developed (if vineyard development continues) fall into the levels of the ordinance in a fashion similar to the already developed vineyards (Fig 2), in that 84% of these areas fall into flat areas subject to Level I regulations. Another method we used examines how future areas for vineyard development will be effected by the Sonoma ordinance, by calculating the areas that fall into the different slope categories (level 1-3) for all of the acres mapped as having a relative probability of being suitable for vineyards greater than 0.5 in our model (see Heaton and Merenlender ms 1672). With over 100,000 acres of land meeting this criteria we naturally get higher percentages in areas that would require erosion control plans (Fig 2).

We can conclude from this exercise that since most future vineyard development in Sonoma County will fall under Level I. No more than 36% of future vineyard development, and more likely closer to 20%, will fall under the more stringent regulations requiring 50ft set backs and an erosion control plan. We provided analysis of this type to the committee that developed this ordinance and presented the results to the Board of Supervisors and the public prior to the adoption of the ordinance. We hope continued use of this approach will assist the public and policy makers in quantifying the implications of these types of policies for agricultural development and environmental protection.

In summary

This paper points out the inconsistent application of the CEQA due to the fact that oak woodlands are not protected as a forest type under the Z'berg-Nejedly Forestry Practice Act. While local oak protection policies have been encouraged by the Board of Forestry, where in place these usually provide only limited review of the potential environmental impacts that can occur when extensive amounts of native vegetation are removed for vineyard development. Some County's have adopted new ordinances that address environmental concerns over vineyard development, however, because these sometimes involve discretionary review of project plans by government these projects may ultimately be subject to the CEQA. If new ordinances adopted to prevent environmental problems associated with hillside vineyard development result in the CEQA review process, then counties may be more hesitant to adopt these regulations because of local opposition.

Analyses such as that presented here for Sonoma County can be applied to proposed policies to evaluate the degree of protection provided by regulations that pertain only to certain site conditions. Fueled with this type of information, decision-makers may be better informed to adopt policies that provide environmental protection and facilitate sustainable agricultural development.

Large scale vineyard development into areas previously undeveloped and planting of steep hillsides results in increased environmental damage and should be discouraged. Various methods for encouraging natural resource conservation and promoting sustainable agriculture at a landscape scale are needed. We encourage the steps that CDF

is taking to exercise greater enforcement of environmental laws and stricter review of forest conversion applications. Locally developed regulations, as seen by the Sonoma County example, are limited with respect to environmental protection. Educational and outreach programs and materials (e.g., Vineyards in an Oak Landscape, see box this issue) are important tools, along with increased dialog between farmers and neighbors. Mitigating the on-site and off-site impacts of deforestation can be difficult, although, some grape growers have adopted voluntary tree replacement on site. Along with this we would also encourage off-site measures for large-scale tree cover removal. Because off-site mitigation does not prevent the loss of important biological functions that may be limited in and around the project site, off-site mitigation should be carefully considered (see Merenlender and Crawford 1998). If intensive land recontouring involving extensive engineering and terracing is done, then decommissioning costs should be set aside to ensure that when the vineyard is no longer in production, the hillside will be restored to prevent slips, slides, and failures. Such steps would advance the environmental protection that California's oak woodlands deserve as the state's richest biological community.

Literature Cited

Garrison 2000. A Strategy for Conserving Oak Woodlands in Vineyard Landscapes. California Department of Fish and Game Report.

Merenlender A. and J. Crawford 1998 Vineyards in an oak landscape: Exploring the physical, biological, and social benefits of maintaining and restoring native vegetation

in and around the vineyard. Division of Agriculture and Natural Resources publication 21577. University of California, DANR, Publ 21577 Oakland, CA

Acknowledgements

The information presented in this paper was contributed by many local county employees and folks from special interest groups around the state who we owe thanks to. We especially would like to acknowledge Jill Butler, Tess Albin-Smith, Morty Prisament, Dave Bengston, Dave Woppler, Abe Leider, Rick Standiford, Dave Steiner, David Bannister, Emily Heaton, Kerry Heise, and Chris Mahlen for fruitful discussions on the topic and comments on the manuscript.

Affiliation

Adina M. Merenlender, CE Cooperative Extension Specialist, Integrated Hardwood Range Management Program (IHRMP), Environmental Science, Policy, and Management, UC Berkeley.

Colin N. Brooks, GIS Analyst, IHRMP, Hopland Research and Extension Center

Gregory A. Giusti, CE Natural Resource Advisor, IHRMP, Mendocino County

Fig 1. Map of vineyard ordinance levels for Sonoma county using soils data where available.

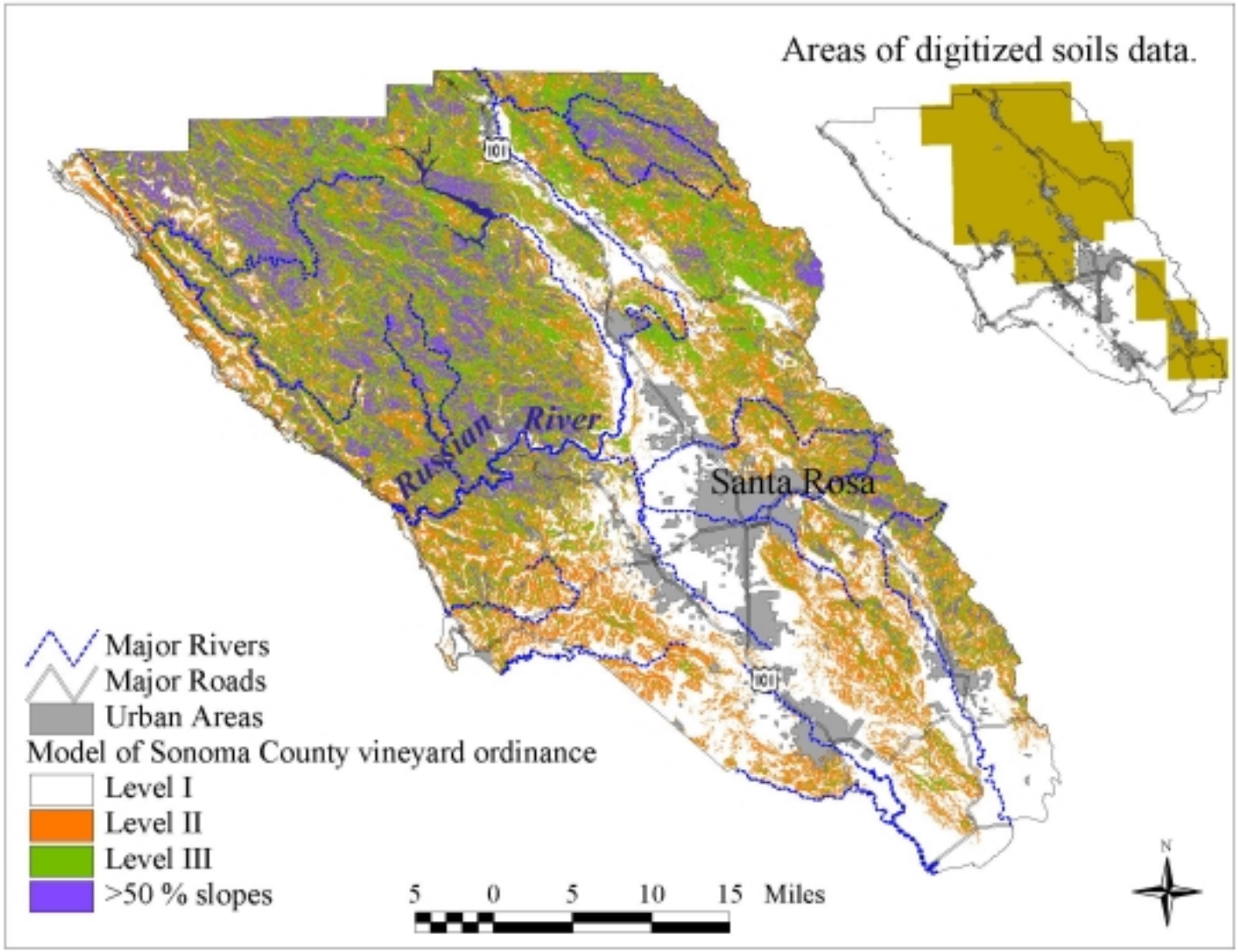

Fig. 2 The percent acreage that falls into each ordinance Level mapped in Figure 1 is presented. Level I requires notifying the agricultural commissioners office and a 25ft stream set back, Level II and III requires a certified erosion control plan for sites on slopes averaging between 15-30% slope (10-15% for highly erodible soils) and 50ft stream set backs (see text for greater detail).