Planning Commission Mtg.
MARCH 06 2019
Agenda Item # 7A

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Sent: Tuesday, March 05, 2019 2:04 PM
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Subject: Comments Draft Tree Protection Ordinance

Hello Luis,

Please include the attached letter in the Agenda Packet for the Planning Commission.

Thank you,

Kellie Anderson
Linda Falls Alliance

Napa County Planning Commission
1195 Third St
Napa CA 94559

March 5, 2019

Dear Chair Gallagher,

Please accept my comments on the Draft Water Quality & Tree Protection Ordinance:

Ephemeral Streams

Upland ephemeral streams are the most critical conveyors of clean surface water to municipal water reservoirs and our larger creeks and river. The largest possible setbacks should be adopted in conjunction with state and federal agencies. Prohibitions on all chemical storage, worker parking, outhouse storage and washout, spray rig mixing and loading and washout, well drilling and any infringement on stream side habitats must be included in this ordinance. This must be specifically included in the Draft.

Item D in memorandum, Vegetation Removal Mitigation for Restoration Projects

The proposed Vegetation Removal is a typical mitigation that is unenforceable. This is a loop hole that may be intended for a very good reason for example removal of vector vegetation for sharpshooters. But the current oversite and enforcement does not exist. How is comparable vegetation defined? At what densities? How would this be monitored and by whom to ensure success of replacement vegetation? Under what scenarios is removal of vegetation in a stream setback permitted? Note that vineyard approval is not a public process and no public comment or Planning Commission or Board review is required. Who is the watchdog? County staff in not able to do this.

Item E Preserved Vegetation Canopy Cover

This is a welcomed effort but as recent projects have highlighted (Ciminelli 18 acre THP/ECPA/EIR), a deed restriction is a document recorded with Recorders Office that has no ongoing monitoring for compliance. In fact, this addition to the regulations proposes no details about *what conserving and preserving vegetation canopy cover* means. This is insufficient for the following reasons.

A simple Deed Restriction has no ongoing monitoring and no guidelines for habitat quality to be maintained. Deed Restrictions, while attempting to provide wildlife habitat, forest stability and potential connectivity are not held in a manner where by this *quasi conserved* area is known to agencies and organizations who work with landscape level watershed and habitat programs. Fish and Wildlife or Land Trusts don't have access to this Deed Restriction information and cannot do comprehensive bio-region planning based on these 'invisible' conserved lands. These conserved and protected areas are usually too degraded to warrant third party conservation easements. The Deed Restriction are a classic paper rat hole that is unenforceable and continues to permit critical habitat loss.

Interpretation of *conserving and preserving* is not defined and we have seen this challenged recently with Damery/Arbuckle deed restriction where this is being interpreted to mean removal of understory vegetation is allowed for vineyard development. Specific protections of vegetation types must be called out in Draft.

In the case of Ciminelli, immediately following project approval, the deed restricted area was cleared of all forest understory vegetation and impacts to runoff resulted in sedimentation of a pond which supported Western Pond Turtle. How follow is is up conducted on retained vegetation? What are the enforcement tools?

Class 4 Minor Alterations

Staff should be requested to prepare a map and table analysis of drainages that have had vineyard development since 1993 to verify the 5 1/5 % limit on vineyard development cap. This information should be accessible on county web site

and each project should be updated on web site at project approval. Should this include other types of development including residences and vineyards?

Staff should also prepare map and table quantifying vineyard developments on slopes of less than 5 acres on slopes of less than 15% for a cumulative evaluation of loss of natural vegetation. This is not a CEQA issue but a tool to inform policy makers of watershed stability.

Vegetation Requirements Draft Section 2 C

This proposes a provision for two or more contiguous parcels to be considered combined and treated as one holding for purpose of compliance with the vegetation requirements. This is a loop hole that is not based on conservation of biological resources rather to maximize potentially developable areas. This must be amended to require any project with multiple parcels to be combined permanently into one parcel. In addition any parcels included in such a multi parcel project must be perpetually restricted form being utilized for future lot line adjustments. This would achieve to actual goal of conserving natural landscapes.

Setbacks in municipal watersheds 5 G

This should be increased at minimum to **500 foot beyond the lands owned, controlled or conserved by water agencies**. The current proposal is for a 200 foot set back from *high water* mark which achieves virtually no additional protections for reservoirs. To quote the Manager of Howell Mountain Municipal Water Company "It is too late for Howell Mountain, we are encircled by vineyards." It is unfair to characterize the support of a 200 foot setback by Howell Mountain Mutual water Company as the Director went on to state " the 200 foot number means nothing, every project should start with three people in a room, Me, the applicant and the County." The 200 foot proposal is insignificant to provide any additional protections beyond already protected lands.

https://napavalleyregister.com/community/star/news/local/angwin-water-company-seeks-damages-for-landslide/article_3d48f770-085c-574f-9398-77c1c11bcfca.html

Section 3F Construction Fencing

Construction fencing is suggested as a method of protecting stream setbacks and wetlands. My observation of this is that this is not happening and is not being reviewed by county staff in the field. The case of Bremer is a perfect example of how this is not working. Will county staff conduct field monitoring of fencing over the life of the project construction? Staff resources and a monitoring program verifying fencing placement and maintenance over the life of the construction phase must be required and the County's role as partner in developments must be clearly defined.

Section 15 Oversite and Operation

This is a failed system. We must have county staff conduct milestone inspections of these complex projects. Relying on a qualified professional **who works for the applicant** is not acceptable. The cases of Del Dotto and Bremer are ample demonstrations that the ***professionals*** we are relying upon are not necessarily following the approved plans. The is a foundational failure in our existing erosion control program. Projects lasting several years, requiring massive recountouring of slopes, importation of cave tailings, and development of multiple retention basins are massive and critical infrastructure that must be verified by county staff on a regular basis during project development. We must not rely on Resource Conservation District winterization inspections as a confirmation that the project was built as approved. This is the number 1 problem with ECPAs in the county right now.

I support a 90% canopy retention of all Oak woodlands. As proposed the 70 % retention is a compromise offering an slow certain loss of forest, oak woodland and watershed lands that provides insufficient conservation of natural lands necessary to protect our agricultural economy and to provide water security.

No mitigations should be permitted on areas that are otherwise conserved via slope limits, stream setbacks or any other restriction on development. This is double dipping and no additional conservation is achieved. This is a compromise that ignores the world wide emergency we are experiencing. For these new regulations to be at all meaningful, more that busy

work for staff, The Commission, the Board and hundreds of stake holders this Draft Water Quality & Tree Protection Ordinance needs to implement changes that may be painful in today's world to protect us in a world that will be utilized by your grandchildren.

Thank you for your work on The Draft Ordinance. It is incomplete as written and will not achieve meaningful conservation protections for crucial watershed and natural landscapes without significant a changes.

Sincerely,

Kellie Anderson

Linda Falls Alliance

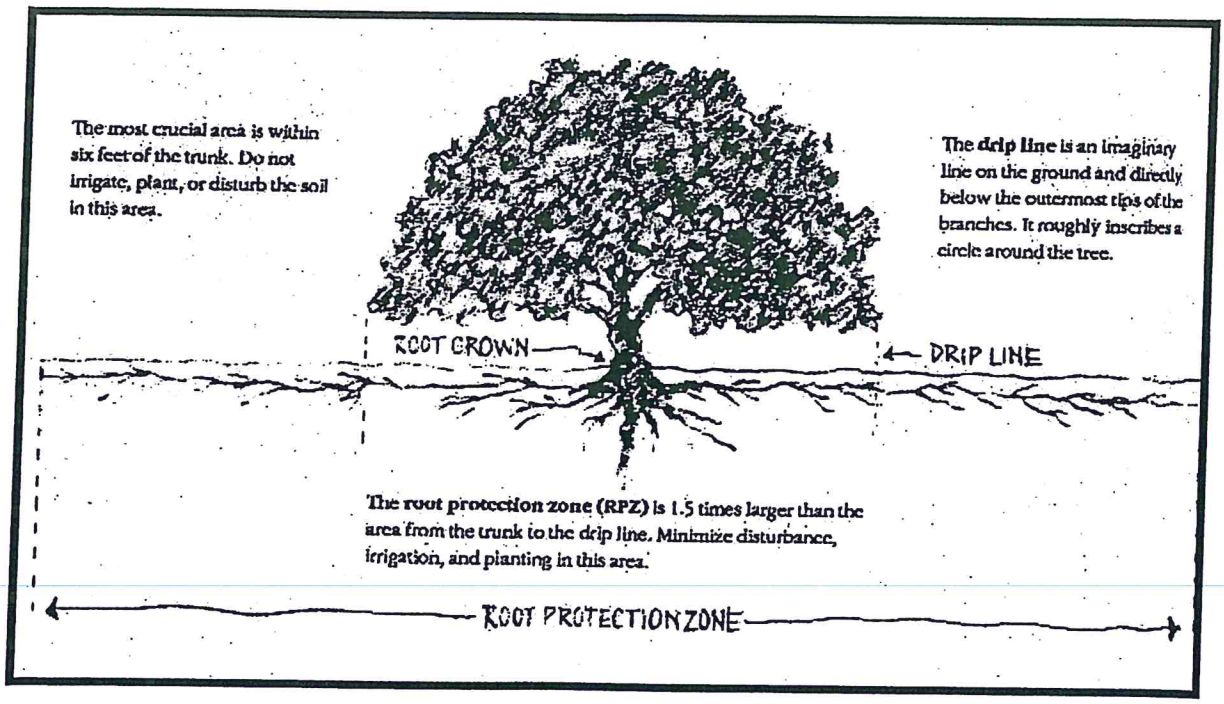
Care of California's Native Oaks

Bulletin of the California Oak Foundation

Native oaks, when young trees, are very tolerant of their environment and make excellent and adaptable landscape assets. The mature native oak is an invaluable part of our environment but does not tolerate many changes once established.

Architects, builders, homeowners, and others should be very careful in fitting their plans with these magnificent giants. Any substantial change in the mature oak's environment can weaken or kill an oak, even a healthy specimen.

A good rule of thumb is to leave the tree's **root protection zone (RPZ)** undisturbed. This area, which is half again as large as the area from the trunk to the dripline, is the most critical to the oak. Many problems for oaks are initiated by disturbing the roots within this zone.



A Word About Roots

Our native oaks have developed survival adaptations to the long, dry summers of most of California. Primary to this survival is the development and characteristics of its root system. When an acorn first sprouts, there is rapid root development and very little growth above ground.

This initial root is a tap root extending deep underground for dependable moisture. In fact, the tree's first few years are focused on establishing a deep sustaining root system. Once this has happened, greater foliage and above-ground growth takes place.

As the oak grows, the tap root is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to and well beyond the dripline, sometimes as much as 90 feet. For

a mature oak, this horizontal root system is the primary supporter of the tree for the rest of its life. It includes the important fine roots, which absorb moisture and nutrients. Most of the root system occurs within the top three feet of soil. In shallower soil the root system is concentrated in an even shallower zone, typically one to two feet below the surface.

As the oak matures, particularly in areas naturally dry in summer, deep-growing vertical roots form off the laterals, usually within ten feet of the trunk. These sinker roots exploit deeper soil moisture and add stability to an increasingly massive tree.

By the time a mature oak has established its elaborate root system – so well designed for its environment and particular site conditions – it has lost the vigor of youth. It is less tolerant of change and can less easily recover to support a fully developed living structure.

To protect a mature oak, pay particular attention to drainage, and avoid filling, trenching, or paving near its root zone.

Fill Around Oaks

Soil and other materials placed on top of the natural soil level, called fill, are usually compacted. They make the soil less permeable, thereby restricting or prohibiting the exchange of gases and movement of water. Excessive moisture trapped by fill can also cause root and crown rot. Because there is no guarantee that fill can be safely added around an oak tree, it is best to avoid tampering with the natural grade, or to leave the natural grade within the root zone alone and use retaining walls.

Drainage

Poor drainage is a common cause of oak tree deaths, since adequate drainage is critical to ensure a proper balance of moisture, air, and nutrient to grow and survive. Too much moisture, particularly in the warm months when natural conditions are dry, can smother the roots and encourage the proliferation of crown and root rot fungi.

Another moisture threat to oak roots is presented by barriers such as concrete foundations and footings, streets, and swimming pools downhill of oaks. These structures can dam underground water, causing water to back up into a tree's root zone and drown it.

Trenching

Trenching is an often-overlooked cause of tree death. Trenching usually occurs when underground utilities are installed. Digging a trench for utilities within the RPZ of an oak can sever a significant portion of a tree's roots. Often, several trenches are opened by separate utilities. This multi-trenching is particularly destructive since it impacts a greater portion of the root system.

If utilities must impinge on the root protection zone of a native oak, the trench should be dug by hand, avoiding roots, or utilities bored through the ground at least three feet below the surface.

Paving

Paving can cause the same problems associated with soil compaction. Paving, such as asphalt and concrete, prevents water from soaking into the soil and impedes the exchange of gases between roots, soil, and the atmosphere. In addition, paving usually requires excavation to create a stable base and to allow for depth of paving material. This process compacts the soil and damages roots.

Decking placed on piers is much more compatible with mature oaks than paving.

Care of Established Oaks on Home Grounds

Oaks on home grounds require certain conditions to survive and prosper. Activities of concern to the homeowner are planting near oaks, irrigation and feeding, pruning, installation of home improvements, and disease and insect infestations.

Most native oaks in California evolved and prospered in an environment typified by a cool, moist winter and a hot, dry summer. Under natural conditions, surface soils are wet during the cooler months and become dry by summer. Natural vegetation growing beneath oaks flourishes during the winter and spring and dies by early summer, creating the well-known golden-brown landscape of California's valleys and foothills.

Native oaks, however, remain green because their thick, leathery leaves and other adaptive features reduce their water use. The homeowner should attempt to approximate the natural environment in which these magnificent trees are originally found.

Planting Near Oaks

Only drought-tolerant plants that require no summer water should be planted around old established oaks, and they should be planted no closer than six feet from the base of the tree. Do not plant exotic grasses, ivy, azaleas, rhododendrons, or any other vegetation that needs summer irrigation. Such plants develop thick mats of roots and thus inhibit the exchange of air and water the established oak has grown used to.

There are a number of plants, some of which are native to California, that can be grown beneath oaks. For an extensive listing of compatible plants useful for landscaping around oaks, contact the California Oak Foundation.

In place of plants, other types of ground cover can be used to landscape beneath oaks. When installed properly, cobbles, gravel, and wood chips are good examples of ground covers that do not interfere with the roots' ability to obtain oxygen and appropriate moisture.

Irrigating and Fertilizing

Native oaks usually do not require irrigation as they are well adapted to dry summer conditions. Healthy oaks are even able to survive the excessively dry summers sometimes brought on by California's variable climate. But if an oak has been compromised, as when impervious surfaces have been placed in the RPZ, occasional water may be helpful if done properly.

Oaks should be irrigated only outside of the RPZ. Under no circumstances should the ground near the base of a native oak be allowed to become moist during warm weather periods. Moist, warm soil near the base of a mature oak promotes crown and root rot.

Irrigation, if done, should be by the "deep watering method," which consists of a slow, all-day soaking only once or twice during the summer dry period. Frequent, shallow watering not only encourages crown and root rot, it also results in the growth of ineffective shallow roots near the surface, a needless waste of the tree's energy.

If oaks need supplemental watering, it is best to apply the water at times that lengthen the normal rainy season, so the normal dry period in the middle to the end of summer is preserved. For example, additional irrigation would be appropriate in May and September, while leaving the area under the tree dry in July and August.

Mature oaks usually need little or no supplemental fertilization. Light fertilization may be appropriate in landscaped situations to replace nutrients supplied by leaves and other litter that normally accumulates under an oak in its native environment. If leaves are allowed to remain under trees, they eventually break down and supply nutrients.

Fertilization should only be done if growth is poor. Fertilizers should be applied to the entire RPZ, ideally in late winter or early spring. Trees that have recently undergone severe pruning or root damage should not be fertilized for at least six months.

Often, when an oak tree shows yellowing leaves, one thinks it lacks nutrients. Generally, this is not the case. More likely, the tree is suffering from root or crown rot. When an oak appears unhealthy, consult a certified arborist to determine the cause.

Pruning

Excessive pruning or thinning of limbs may expose interior branches to sun damage, may stimulate the tree to produce succulent new growth that is subject to mildew, and, in some cases, may cause a decline in vigor or may kill a tree. *Only dead, weakened, diseased, or dangerous branches should be removed.* Necessary pruning should be done during the winter dormant period for deciduous species and during July and August for evergreen species. Recent research has shown that tree paint, wound dressings, and sealing compounds do more harm than good.

Pruning should be performed by a certified arborist according to the pruning standards of the Western Chapter of the International Society of Arboriculture.

Home Improvement

The installation of home improvements should be done with caution when oaks are located nearby. Trenching severs roots, and impervious surfaces placed over roots may result in the death of the oak. A swimming pool placed downhill of oaks can act as a dam and cause an oak to drown in saturated soil.

Great caution should be taken and a certified arborist consulted before proceeding with improvements that impact on the root protection zone of any valued native oak.

Diseases

When growing under natural conditions, native California oaks are relatively tolerant of most diseases. However, they are subject to several problems when disturbed or hampered by frequent summer watering.

The two oak diseases most often encountered in irrigating settings are crown rot and oak root fungus. Both attack trees weakened by disturbance or improper care.

Crown Rot

This is one of the most common and serious diseases of oaks in home plantings. Infected trees decline slowly over a period of years. The disease, caused by a microscopic fungus, is made worse by saturated soil and poor soil aeration.

Symptoms of this disease are a general decrease in tree vigor, twig die-back and wilting, abnormally yellow leaves, and formation of lesions on the bark accompanied by oozing of dark-colored fluid.

In most cases people notice crown rot too late for successful treatment. However, if the disease is caught in the early stages a tree can be saved. Comprehensive treatment is best left to a qualified expert. The following measures usually benefit the tree:

1) Remove lawn and other plants that require summer irrigation from within the RPZ.
2) Remove soil and all other debris that has accumulated against the trunk.
3) Do not water within the RPZ during the summer except under unusual conditions when advised by a certified arborist.
4) Improve drainage around the tree, and make sure all water drains away from the trunk.

Oak Root Fungus

This oak fungus, also known as *Armillaria* root rot, is found in the root systems of most oaks in California. Our oaks experience little damage from this fungus under natural, dry summer conditions. However, when oaks are watered in the summer or weakened by other impacts, the tree can suffer damage from the fungus.

Symptoms shown by an infected oak include die-back of branches and yellowing and thinning of foliage. The fungus itself may appear as a white, fan-like growth with rhizomorphs and mushrooms.

Prevention of damaging conditions is the only sure action that can be taken against this disease. Avoid summer irrigation near oaks. Prevent mechanical damage to major roots or root crown. As with crown rot and other tree diseases, it is recommended that a certified arborist be consulted.

Mistletoe

This parasitic plant grows on the branches of many oaks and can cause structural weaknesses that make branches more vulnerable to breakage. Its sticky seeds are spread from one tree to another by birds. The seeds germinate under favorable conditions, and rootlike structures find their way through the bark, ultimately becoming attached to the oak and tapping into the water-and-mineral-conducting tissues of the tree.

Small infestations can be controlled by removing the mistletoe and cutting back the oak's bark around the spot where the mistletoe stem entered the oak branch. Major infestations are difficult to control, however, and an arborist specializing in oaks should be consulted.

Other diseases

The health and vigor of oaks can also be compromised by a number of other afflictions that are not discussed here. Since 1980, for example, die-back and decline, particularly among the coast live oak (*Quercus agrifolia*), has been observed in widespread areas of California. Several fungi may be involved in this condition, and treatments are still experimental. Seek professional advice whenever you notice serious, unexplained decline in your oaks.

INSECTS

Innumerable insects find their livelihoods in the branches and leaves of oaks, usually without much consequence to the healthy tree. The oak gall, for example, is a harmless swelling of leaves and twigs in reaction to enzymes released where a wasp lays its eggs. Some galls are large and round, others resemble small wads of fuzz, stars, or tops; one, which looks like a tiny seed, falls from leaves in the late summer and occasionally jumps into the air like a Mexican jumping bean.

Some infestations, however, can cause serious damage. Insects such as pit scales (which appear as pinhead-sized scales on the bark of twigs), oak moth and other leaf-eaters can weaken oaks, making them susceptible to disease.

Whenever an insect infestation causes substantial leaf loss, changes in leaf color, twig die-back, sticky or sooty foliage and branches, or other significant changes in appearance, intervention may be required. Consult a certified arborist for assistance.

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The California Oak Foundation is dedicated to the conservation and perpetuation of California's native oak woodlands. The California Oak Foundation educates the general public and decision-makers about the importance of oak woodlands to California's wildlife habitat, watersheds, and quality of life through its newsletters, website, bulletins, books, symposia, and workshops.

Founded in 1988, the California Oak Foundation is a non-profit 501(c)(3) corporation that relies on memberships and donations to continue its work. Join us today and invest in the future of California's oak heritage.

The Washington Post

Home & Garden

The zoo beneath our feet: We're only beginning to understand soil's hidden world

By Adrian Higgins
August 9, 2017

The gardener has a long, touchy-feely relationship with the soil. As every good cultivator knows, you assess the earth by holding it. Is it dark and crumbly, is there an earthworm or beetle in there, is it moist, and when you smell it, are you getting that pleasant earthy aroma?

All these signs are reassuring, and have been through the ages, but they are mere indicators of something much greater and infinitely mysterious: a hidden universe beneath our feet.

This cosmos is only now revealing itself as a result of scientific discoveries based on better microscopic imaging and DNA analysis. There is much still to learn, but it boils down to this: Plants nurture a whole world of creatures in the soil that in return feed and protect the plants, including and especially trees. It is a subterranean community that includes worms, insects, mites, other arthropods you've never heard of, amoebas, and fellow protozoa. The dominant organisms are bacteria and fungi. All these players work together, sometimes by eating one another.

he awareness of this biosphere should change the way gardeners think about cultivating plants and heighten veryone's understanding of the natural world. In other words, don't ever call it "dirt" again.

ne sheer vitality of it is mind-bending: A teaspoon of good loam may contain a billion bacteria, yards of fungal rands, several thousand protozoas and a few dozen nematodes, according to Jeff Lowenfels, a garden writer sed in Anchorage and co-author of "Teaming With Microbes."

This is, basically, how it works: Plants manufacture carbohydrates through photosynthesis, but not just for themselves. They release some of their carbon sugars into the soil, which causes the bacteria and fungi to show up to feed. The bacteria crowd around the root zone, and the fungi form vast networks of interlocking strands that often link one plant to another. The bacteria convert nitrogen and other nutrients into forms the plants can use, often by getting devoured by other microbes.

The fungal strands, the mycelium, effectively increase the root mass of its host plant by as much as a thousand times and transport a bevy of goodies to the host plants, including phosphorus, copper, calcium and zinc. There is also evidence that trees use this network to send signals to one another if, say, leaf-eating pests have arrived.

In his Ted Talk, mycologist Paul Stamets referred to mycelium as "Earth's natural Internet."

Although some plant (and human) diseases are caused by soil-borne fungi and bacteria, most of these microbes are beneficial and keep the bad ones in check. The organisms assist in other ways, by increasing the size of soil particles, which improves the ability of the soil to hold water and air.

Even in the middle of a city, the subterranean world is thriving.

Scientists took almost 600 soil samples from across New York's Central Park and discovered a surprising diversity and richness. They identified more than 120,000 types of bacteria and more than 40,000 species of fungi, protozoa and arthropods.

Among the unexpected findings: The microbial species were the same, more or less, as those found in parts of the world with dramatically different flora and climates from New York's, including Antarctic cold deserts, tropical forests and grasslands.

There was a strong association between the diverse organisms in each sample. "Unravelling these relationships will be critical to building a more integrated understanding of below-ground ecology," the researchers wrote in a paper published by the journal for the British Royal Society. "Our work highlights that most of the diversity found in soil remains undescribed."

Enough is known, however, to create a 21st-century subset of farming known as regenerative agriculture. The farmers have discovered that if you foster this biosphere, you don't need expensive fertilizers because the microbes repay the plants with nutrients. They also, for obvious reasons, avoid pesticides that would kill this soil life.

The farmers do as little soil digging as possible because traditional tillage destroys the fungal networks and the desirable soil structure. Cover crops keep the soil life happy between growing seasons.

Advocates of this low-impact farming say it can restore soil carbon lost by the historic conversion of forest and prairie to farmland and help to mitigate greenhouse gases. In the 1990s, an Agricultural Research Service scientist in Beltsville, Sara F. Wright, discovered a sticky coating to fungal threads named glomalin that, it turns out, is a major reservoir for carbon.

Lowenfels says it's also time for gardeners to adopt practices that nurture the soil biosphere. To say he thinks deeply about this subterranean world is an understatement. In addition to "Teaming With Microbes," he has written "Teaming With Nutrients." His latest title is "Teaming With Fungi," which dwells on the type of fungi that directly associate with plant roots. They are known as mycorrhizal fungi, and he's a big fan of adding them to his plants when they are installed, either as a spray or in powdered form available from the garden center. "It works. My tomato plants are bigger than the control, they've got more fruit on them, the plants are so healthy," he told me. "My carrots are unbelievable this year."

Some gardeners turn to compost tea to build soil microbes. This is made by aerating sugars, compost and humic acids in non-chlorinated water and then spraying the brew on plants and soil. Others are not convinced that this is needed, though everyone agrees that the way to foster the soil food web is to top-dress growing beds and lawns with organic matter such as shredded leaves or finished compost.

James Nardi, a biologist at the University of Illinois in Urbana, offers this advice: "Work with your fellow non-human gardeners. I never use synthetic fertilizers, and I never use pesticides." Nardi's 2007 book, "Life in the Soil," remains an excellent introduction to the subject.

In the fall, he mixes horse manure with fallen leaves, shreds the mixture and applies it as a mulch to his growing beds. "In the spring, I have this lovely, spongy soil," he said. Lowenfels shreds autumn leaves on his lawn and lets the biosphere use them over the winter.

The organic gardener's mantra has never seemed more appropriate. Feed the soil, not the plant.

The players

• **Earthworms:** Earthworms (and other worms) play an important role in the hidden biosphere. Most worm species in the garden were imported by Old World settlers, and some worms in certain regions have caused a problem by processing organic matter too efficiently. The latest culprit is a creature called the Japanese crazy worm (*Amynthas agrestis*), which multiplies like, er, crazy and damages the soil structure through mass feeding. It is long established in parts of the Southeast but has spread recently to Wisconsin and Illinois, where it is causing problems.

But the European earthworms familiar to most gardeners are helpful.

Worms provide critical assistance to smaller organisms by breaking down and incorporating leaves into the soil, so all may eat. Worm castings are rich in nutrients, including calcium, nitrogen, phosphorus and potassium.

The most famous observer of earthworms, Charles Darwin, estimated that they could add as much as 40 tons of casts per acre annually.

• **Insects:** Thousands of insects (and spiders) live in a patch of soil. Some are considered pests by humans — Japanese beetle grubs, termites and weevils, for example — but others are beloved or at least beguiling and include the larvae of lightning bugs and cicadas. Dung beetles convert animal waste into humus, a service we take for granted. Ants are the most abundant soil insect. Although some species are pests or nurture pests such as aphids, ants with their highly organized colonies are essential members of the soil biosphere. They assist in the conversion of litter to humus, move and mix large quantities of soil, and spread the seed of bulbs and other desirable plants.

• **Other arthropods:** The more conspicuous of these include millipedes and centipedes, as well as woodlice. Millipedes feed on plant debris and microbes; centipedes eat other arthropods. Woodlice, or sowbugs, are crustaceans that like soft plant debris and make quick work of green plant material and newly fallen leaves.

One of the most abundant, but barely visible, arthropods in the soil are springtails. They are named for a tail-like structure that allows them to jump when threatened. As many as a billion or more can live in an acre of soil. Depending on species, they cycle plant debris or feed on fungi, algae or other springtails.

Mites are generally regarded by gardeners as pests, and some are — sucking sap from plants and spreading disease. But the soil houses an immense community of non-pest species that are essential to the cycle of life. Half the known species of mites live in the soil, where they feed on decaying plant litter. Nardi writes that they "set the stage for smaller decomposers like bacteria and fungi to free most of the energy and nutrients stored in those leaves."

Some mites are predatory and attack nematodes and other small creatures.

• **Nematodes:** Nematodes are tiny wormlike creatures that have traditionally been viewed in agriculture as serious pests that harm plants by feeding on their roots. More recently, the view of nematodes has become more nuanced because some species are now commonly used (and purchased) as predators of garden pests such as slugs, vine weevils and white grubs, to name a few. In truth, the world of nematodes is much greater and can only be imagined. Experts believe there may be close to a million species, of which only a fraction have been described scientifically.

Some nematodes eat soil bacteria and fungi, while others prefer to consume other soil arthropods and protozoa. Their value to the garden is in converting nitrogen into a form that plants can use.

Protozoa: Protozoa are microscopic creatures that live in vast numbers in the film of water between soil particles. The most well known is the amoeba, but these microbes come in several forms, including species that move with a single flagellum or with hairlike cilia.

They are the major predator of bacteria, and in consuming them they release nitrogen and other nutrients to plants.

Protozoa, in turn, are eaten by nematodes and other small arthropods.

• **Bacteria:** Historically, bacteria have been associated with germs. Some of the nastiest human diseases — anthrax, typhoid, tuberculosis and syphilis, for example — are the result of bacterial infections. But we have come to know too that our guts are full of beneficial bacteria and essential to our health.

The soil is the same way — the bad actors are outnumbered and usually outwitted by the good ones. Healthy soil is loaded with bacteria, and because they're not very mobile, they tend to hang out in vast numbers on and around the roots of plants, a zone known as the rhizosphere. There can be as much as 100 times more bacteria around plant roots than elsewhere in the soil, and with good reason. The plants feed them carbon sugars. The microbes give back nitrogen.

• **Fungi:** Fungi break down organic matter, which is why you will see mycelium strands in compost piles and under leaf litter. Two basic forms of fungi form a symbiotic relationship with plants. One exists in proximity to root tips and associates with hardwood trees and conifers. The other penetrates the cell wall of the roots and is found in plants of the domestic landscape — flowers, shrubs, grasses and vegetables.

The fungi grow tiny, fragile strands called hyphae. They are a tenth the thickness of human hair, but there are so many of them that they form a vast network, effectively extending the reach and efficiency of plant roots. In her book "The Soil Will Save Us," science writer Kristin Ohlson says there can be as much as 320 miles of hyphae in a cubic foot of soil. At least 80 percent of the plants on Earth connect to these fungal partners.

"Gardeners need to know this stuff," Lowenfels said. "A thinking gardener is a better gardener."

@adrian_higgins on Twitter

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16 Comments

drian Higgins
drian Higgins has been writing about gardening, landscape design and related environmental topics since the late 1980s. e joined The Washington Post in 1994. He is the author of several books, including the "Washington Post Garden Book" and Chanticleer, a Pleasure Garden." **Follow**

From: Karen Crouse <karen@mountveedermagic.com>
Sent: Tuesday, March 05, 2019 4:24 PM
To: Morrison, David <David.Morrison@countyofnapa.org>
Subject: proposed Water Quality & Tree Protection Ordinance

Hello Mr. Morrison
How are you today?

Please accept the attached letter as my husband's and my oppostition comments regarding the proposed Water Quality & Tree Protection Ordinance. We will attend the meeting tomorrow.

Thank you.

Karen and Greg Crouse
Crouse Vineyards
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NAPA VALLEY
Crouse Vineyards

Dear Supervisors and Commissioners:

We are writing to voice our deepest concerns over both the process and content of the Napa County Water Quality and Tree Protection Ordinance. We believe these concerns are so serious that the only proper course is for you to take consideration of this ordinance off the table at this time.

Specifically, two major topics have not been adequately addressed to move forward:

- 1. No clear rationale has been provided – we are missing the "why." Indeed, there is a common perception throughout the Valley that the Board is acting for political reasons, not in response to real problems.
- 2. The county has not stated what the expected impacts of the ordinance will be. How much plantable land will be lost, and how will that loss impact the General Fund? What measurable gain will there be to the environment?

The lack of a solid basis for passing this ordinance poses a risk not just to us – but everyone who calls Napa Valley home. Too much is at stake, from our overall safety and wellbeing as citizens to the health of our local economy and base of employment.

We embrace the chance to work with you to fill in the gaps – to assess whether there is an adequate "why" behind the ordinance and gauge their impact. We are committed stewards of the environment and welcome changes to our conservation regulations when they are called for and will bring about positive impacts. Until that time, we urge you as a unified, collective voice to put this process on hold until you can address these unanswered concerns.

Signature: 

Karen and Gregory Crouse, Owner

3379 Solano Avenue, Suite 220 Napa CA 94558 ~ karencrouse@gmail.com

From: Molly Williams <mwilliams@napagrowers.org>
Date: Tuesday, Mar 05, 2019, 4:31 PM
To: Morrison, David <David.Morrison@countyofnapa.org>, Joelle Gallagher <joellegpc@gmail.com>, andrewmazotti@gmail.com <andrewmazotti@gmail.com>, Jeri Gill <JeriGillPC@outlook.com>, Dave Whitmer (WHITMER25@GMAIL.COM) <WHITMER25@GMAIL.COM>, Anne Cottrell <anne.l.cottrell@gmail.com>
Cc: Ramos, Belia <Belia.Ramos@countyofnapa.org>, Wagenknecht, Brad <BRAD.WAGENKNECHT@countyofnapa.org>, Pedroza, Alfredo <Alfredo.Pedroza@countyofnapa.org>, Ryan Klobas (rklobas@napafarmbureau.org) <rklobas@napafarmbureau.org>, Dillon, Diane <Diane.DILLON@countyofnapa.org>, Tran, Minh <Minh.Tran@countyofnapa.org>, Bordona, Brian <Brian.Bordona@countyofnapa.org>, Paul Goldberg <paul@bettinellivineyards.com>, Jennifer Putnam <JPutnam@napagrowers.org>
Subject: Updated Letter on Behalf of Napa Valley Grapegrowers

Dear Napa County Planning Commissioners and Director Morrison,

On behalf of Napa Valley Grapegrowers, please find an updated letter attached for the record, in advance of tomorrow's Planning Commission discussion on the proposed Water Quality and Tree Protection Ordinance. New language can be found on page four in bold.

Please let me know if you have any questions. Thank you for this opportunity to comment.

Best regards, Molly

MOLLY MORAN WILLIAMS • INDUSTRY AND COMMUNITY RELATIONS DIRECTOR
NAPA VALLEY GRAPEGROWERS • t: 707.944.8311 x118
www.napagrowers.org • Facebook • Instagram
Preserving & Promoting Napa Valley's World-Class Vineyards for Over 43 Years

Attention: Napa County Planning Commissioners
Napa County Planning, Building & Environmental Services Department
1195 Third Street, Suite 210, Napa, California
(707) 259-8757

Subject: NVG Promotes Protection of Ag, Climate, and Environment

Dear Napa County Planning Commissioners,

I write to you on behalf Napa Valley Grapegrowers, representing over 725 grower, vineyard manager, and associate members, with a shared mission of preserving and promoting Napa Valley vineyards. As an organization, we are rooted in education and, therefore, submit this letter to provide the County with ample context, in-the-field experience, and—where we feel it is needed—requests for clarification in order to promote smart policy decisions. In this way, we are happy to serve as a resource of information to the County and community members.

We also believe that it is important for the County to understand NVG's background and current level of engagement in advancing sustainability efforts in Napa County. Simply put, education in sustainability is NVG's 'bread and butter'; it is who we are as an organization. This is supported by the dozens of educational programs we deliver to Napa County growers each year centered on best farming practices. Through educational outreach, NVG advocates for preservation of ag land, responsible land stewardship, resource conservation, protection of water and air quality, preservation of habitat, respect for wildlife, and more. Our annual ROOTSTOCK Symposium, which has hosted over 2000 people, focuses on how better practices in the vineyard also make for better wine quality, and we are also the only organization in the country to host an Organic Winegrowing Conference, which happens bi-annually.

As we continue to look ahead and develop educational content, we see a real need for leadership when it comes to adapting Napa County vineyards to climate change. We view our involvement in this as embedded in NVG's mission and have already begun centering programming and educational tools on climate-smart farming techniques aimed at sequestering carbon and protecting soil health. Based on our experience, NVG believes that there are great gains to be had by continuing to improve how we as farmers manage lands, and that the protection and promotion of sustainable agricultural lands enhances the overall health of our local climate and environment. It is through this lens that NVG approaches any communitywide discussion related to conservation.

The Commission is now tasked with discussing proposed changes to Napa County's Conservation Regulations via the Draft Water Quality & Tree Protection Ordinance. Since their inception, the Conservation Regulations have been nationally recognized as landmark legislation, forward-thinking and progressive. They have been a point of pride for Napa County legislators and the grapegrowing community since 1991. Napa County's Conservation Regulations were not written overnight but were the result of many difficult discussions and significant public participation. To this end, we are grateful to the County for the opportunity to comment on the Draft Ordinance and ask the County to consider the following areas of question and concern:

- Overlaying of proposed mandates

- Mitigation standards
- Limiting development footprint and pressures on existing ag land
- The Regional Water Board's Waste Discharge Requirements & other existing regulations
- Vineyards and carbon sequestration
- Economic impacts & the importance of protecting small farms, family operations and opportunities for young talent
- Additional clarifications

OVERLAYING OF PROPOSED MANDATES

NVG's Recommendations

The Board of Supervisors recognized during its previous discussion that many of the proposed standards listed in the Draft Ordinance work in conjunction with one another; therefore, it is important to piece requirements together in a thoughtful way. In doing so, NVG recommends the following:

- Strive for clarity in language and seek consistency with existing County and State regulations
- Promote responsible and sustainable vineyard development and protect existing ag land from pressures to yield to other types of development
- Vet proposed standards through the lens of maintaining site-specific flexibility
- Prioritize best biological and environmental outcomes
- Do not limit requirements to agricultural development; apply to all development
- Filter final recommendations through reference to specific goals--that is, clarify in what way new mandates improve upon what is already required
- Advocate for preservation of large, contiguous pieces of open space as opposed to fractured areas
- Continue to make time for those to weigh in whose livelihood may be impacted by these changes

Avoiding Fractured Development and Fractured Conservation Spaces

As currently drafted, NVG would like clarification that the combination of slope, canopy retention, and mitigation requirements will not inadvertently promote a more fractured development and conservation footprint. More fractured parcels lead to more roads, which are one of the greatest offenders when it comes to sediment erosion, and do not promote carbon sequestration efforts. Therefore, we do not want an unintended consequence of this proposed legislation to be that a road is allowed in areas that no longer allow for agricultural green spaces. This seems possible based on the list of exceptions included in the Draft Ordinance (*Page 17 Section 7*).

Avoiding Duplicative Standards

NVG would like clarification on how the 3:1 mitigation standard overlays with canopy retention in site-specific situations. For example, what would happen in the case of a completely forested property?

MITIGATION STANDARDS

Conservation Easements & Active River Restoration

As the County defines standards around mitigation, NVG encourages legislation that promotes Conservation Easements and active river restoration projects including on slopes above 30% and within stream setbacks.

Conservation Easements and river restoration projects have long been a part of Napa County's history of progressive conservation efforts and should be encouraged by the County as some of the most environmentally beneficial mitigation standards. On the surface, it may be tempting to dismiss these approaches as the 'easy way out' of doing other forms of mitigation, but this is far from the truth. While landowners may gain tax benefits as well as the ability to comply with mitigation requirements, these incentives exist because the process of planning for a Conservation Easement or completing an active river restoration project is actually very complex and requires giving up rights to development beyond what is included in the Draft Ordinance.

Conservation Easements provide the following advantages on top of existing and proposed regulatory limits on development:

- Regulations protecting open space are changeable via initiative or other legislative processes, whereas Conservation Easements are in effect in perpetuity
- While the Draft Ordinance includes a lengthy list of exceptions (Page 17 Section 7) to limitations on slopes over 30% and within stream setbacks (including allowances for roads and other structures), Conservation easements require giving up these rights along with all other development rights
- At no additional costs to taxpayers, Conservation Easements ensure that an entity (i.e. land trusts) takes over responsibility for management of the land, which means enhanced supervision and protection of biologically and environmentally beneficial factors including areas with riparian habitat and sensitive and biodiverse plant and wildlife species
- More resources are available to landowners via partnership with entities like land trusts to monitor and mitigate environmental risks inherent to an area's natural state i.e. natural sediment erosion or lingering effects of natural disasters

Regarding the inclusion of active river restoration as a mitigation technique within stream setback areas, Napa County should consider the success of efforts such as the Rutherford Reach Project as a model. We know that there are still various properties along the Napa River, where even where there is no current development, previous land uses and/or natural sediment erosion and invasive species have hindered the health of the waterway. In these cases, it would beneficial for the County to approve of active river restoration as appropriate mitigation within stream setback buffer zones.

Returning to the issue of fractured properties—these are also less attractive to entities like land trusts who seek larger, contiguous parcels to place in Conservation Easements. Planning Commissioners should vet mitigation standards through the lens of maintaining larger, contiguous vineyard and conservation spaces.

Mitigation & Fire Prevention

Since the 2017 wildfires, Napa County growers are—more than ever—attuned to the need for fire prevention strategies that include forest management and incorporation of defensible space on their properties. To this end, the County should also consider proposed mitigation requirements in the context of promoting fire prevention. As written, the Draft Ordinance's mitigation ratio is currently proposed at 3:1, (Page 9 Section 2) in conjunction with an associated tiering structure, which preferentially treat on-site versus off-site mitigation (Page 9 Section 2). NVG encourages the Planning Commission to vet Board

direction through the lens of fire-wise mitigation strategies, where simply increasing forest density on-site may not always be the preferred option.

Benefits of the Current Process: Site-specific Flexibility & Hierarchy Based on Biological Factors
As currently required, when an applicant submits a project proposal to the County, the pending ECP requires that a comprehensive survey be conducted to identify biological factors such as riparian corridors and the presence of native and/or sensitive species. This survey is conducted by County-approved experts and done throughout the property to determine the best possible footprint for the project. This site-specific approach has successfully changed project proposals for the better, where important biological factors were taken into consideration.

However, the current Draft Ordinance appears to remove some of this site-specific flexibility, by creating a hierarchy based on factors such as above or below 30% slope and on-site versus off-site, rather than on specific biological factors. NVG requests that the Planning Commission thoroughly vet this shift and encourages that the County instead base its hierarchy of protections on site-specific biological and environmental factors that also promote sustainable vineyard development.

LIMITING FUTURE DEVELOPMENT FOOTPRINT & PRESSURES ON AG LAND

Napa County must take a balanced, smart approach to growth. In doing so, NVG cautions the County from inadvertently putting existing ag land at risk. Napa County already claims some of the most restrictive development standards in the country. In reducing the over-all development footprint further, NVG has concerns that existing vineyard land will be forced to yield to other uses.

We urge the County to keep in mind the current rates of growth in the agricultural sector. For example, based on data from Napa County's Annual Crop Report, growth is slow when it comes to vineyards, which are increasing at a rate of less than a half of a percent on average, and vineyard planting is currently tracking well below the expectations written into the 2008 General Plan. NVG believes in continued smart and sustainable growth of responsibly-farmed agricultural land, and the environmental value it can provide communities.

We are concerned that the County is looking at making changes to existing regulations by increasing restrictions on plantable farmland, without due reference to the significant values that farmland provides to all of us. Furthermore, the state of California over the years, has witnessed that increases in overall commercial and housing development, without additional protections for agricultural land, will always result in the loss of farms. This was the impetus for the creation of the Napa County Agricultural Preserve.

Under pressures—regulatory, economic, or otherwise—agriculture always yields in favor to other more commercial or urban uses. These new proposed restrictions, are they to be applied countywide, mean that <u>we will likely even see a decrease in agricultural land in our Agricultural Preserve</u>.

During the Planning Commission meeting on February 20th, PPI, an engineering firm, presented data depicting significant potential loss of farmland as a result of the proposed amendments. Has the County thoroughly analyzed this potential loss of farmland, and have all landowners whose property may be affected been notified by the County?

We implore the Commission to recommend a responsible and careful analysis to any proposed changes to present Conservation Regulations with utmost caution to unintended consequences, both economic and environmental, and, as per the recent Strategic Plan's mandate, that all decisions be based on solid data.

Protecting Track 1 & 2 Replants
As Napa County makes changes to current Conservation Regulations, NVG strongly encourages codifying

current protections for both Track 1 and Track 2 replants. We recommend that the County consider incorporating language into County Code, as drafted and recommended by Napa County Farm Bureau.

In addition to this, we'd like the Planning Commission to consider including language that specifically allows for replants utilizing the Track I process, and not significantly gaining is size. For example, NVG supports the allowance of landowners to change row orientation, remove terracing and restore hillslopes and make other changes that significantly improve the sustainability of the project without significantly changing the footprint.

Effects of New Processes on Properties on Land Zoned for Agriculture

NVG would like clarification from the County as to whether there would have to be a new permitting process instituted for flat, valley floor vineyards as a result of the Draft Ordinance. Previously valley floor properties without slopes could plant vineyards without going through the ECP process, as they are not in any way prone to sediment erosion. What would the application process and enforcement look like for properties such as this post-adoption of the Draft Ordinance, and does the County have the staffing and resources to handle this new process?

THE REGIONAL WATER BOARD'S WASTE DISCHARGE REQUIREMENTS (WDR) & OTHER EXISTING REGULATIONS

As Napa County develops the proposed Water Quality and Tree Protection Ordinance, NVG encourages decisionmakers to take into consideration the landscape of existing regulations to ensure consistency and lack of duplication to better facilitate compliance and enforcement.

As of July 2017, the Regional Water Board that oversees Napa County adopted new mandates for vineyards of 5 planted acres or more focused on increasing water security. Mandates include stream buffer zones, limitations to planting on hillslopes, watershed monitoring, and more. As of July 2018, Napa County growers were required to commit to enrolling and completing a certified farm plan with Water Board approved entity (i.e. LANDSMART, Fish Friendly Farming, or California Sustainable Winegrowing Alliance).

Napa County is not the only County where the Water Board is implementing a vineyard waiver to target sediment erosion. This is a statewide effort, with new rules being applied in counties across California. Furthermore, according to the Water Board, the stated purpose for the vineyard waiver, is not so much to prevent erosion from vineyards, which is covered by Napa County's current Conservation Regulations, but rather a means at capturing risks associated with rural roads that are often found on vineyard properties.

VINEYARDS AND CARBON SEQUESTRATION

There has been significant discussion with regard to the need to adapt Napa County to climate change, and NVG believes that ag land has a valuable role to play in achieving the County's collective climate goals. One of the greatest environmental benefits of agriculture comes from woody crops' inherent ability to sequester carbon in the soil. In this way, perennial cropping systems such as vineyards provide significant opportunities for managing the impacts of climate change locally. According the American Farmland Trust, ag land is responsible for 58 times fewer greenhouse gas emissions per acre than urban spaces.

As more and more research about effective land stewardship policies emerge, we are finding that vineyards are not only carbon neutral, but can be climate positive over the medium and long term. A vineyard's low nitrogen requirements, low water requirements, and ability to thrive in drought conditions make it a powerful tool in the toolbox for combating global warming — and the perfect agricultural product for Napa County.

Through smart carbon farming practices, we are also able to maximize these inherent benefits, to permanently store carbon in huge quantities in our managed lands throughout the county. These practices include mandated cover cropping strategies, judicious use of compost, and other key farming practices promoting soil health and preventing soil erosion. Oftentimes, there is no silver bullet; however, a series of adjustments like these, in all areas of a vineyard operation, have been proven effective.

ECONOMIC IMPACTS & THE IMPORTANCE OF PROTECTING SMALL FARMS, FAMILY OPERATIONS, AND OPPORTUNITIES FOR YOUNG TALENT

Whatever the result of this regulatory process, it is likely that smaller operations will be disproportionately impacted. Therefore, it is necessary that legislators build in certain protections for smaller farming operations and smaller parcels, family farms, and opportunities for future farmers.

Farming Costs on the Rise

The EIR for the Water Board's WDR predicted an 8% increase in costs for growers to comply. Informally, NVG is aware of small farming operations on the cusp of 5 planted acres (the minimum acreage subject to WDR compliance) that, unable to sustain the added financial burden, are choosing to pull out vineyards at a loss to their business and total Napa County ag land. Looking at the broader picture, members of NVG leadership have predicted a 30% increase in overall farming costs—including labor costs—over the next five years. This is significant and will no doubt put immense pressure on growers, and particularly growers with smaller, family operations and parcels. So, the County should be asking itself what any increase in regulatory costs will do to small family operations, many of whom, may be on the cusp of this tipping point. What will it mean for Napa County to lose them?

Long-Term & Significant Trends

A significant number of growers have begun leasing properties to larger professional companies that can handle the vast network of compliance mandates (i.e. WDR, FLC licensing, Pesticide applications, etc…). Leasing vineyards can be considered a stopgap for many property owners from outright selling their properties, when they care deeply and do not want to give up stewardship of the land.

On the other hand, Napa County has also seen an uptick in second homeowners that may or may not have as deep of a connection with the farming process. This has the potential to endanger the long-term protection of that land. For example, what happens when a vineyard or orchard does not return enough on the landowner's investment or fails to cover the property taxes? Farming gives way or yields in every scenario to a different land use more suited to a property owner's economic situation. In these cases, we will see that the 'highest and best use of the land' will switch from agriculture to the real estate value of the land.

Lastly, with additional regulatory burdens and costs, the barrier to entry continues to increase in Napa County. Consequently, many young, talented vineyard managers and winemakers working within the local industry have begun building brands elsewhere or not building them at all, for both economic reasons and the simple fact that there are fewer roadblocks to success in other comparable winegrowing regions. While it is difficult to quantify this last effect, it is easy to understand how losing young talent personally vested in Napa County is tied to the future stewardship of the land.

ADDITIONAL CLARIFICATIONS

NVG requests the following additional clarifications on the Draft Ordinance:

- Regarding the small vineyard exemption, does "5 acres" refer to 5 planted acres, as with the Water Board's WDR or the total parcel acreage? NVG believes this should read "5 planted acres". (Page 31

Section 17)

- Do mandates related to tree canopy, shrub, and grassland protection refer to all types of trees, regardless of status as native or beneficial? What about invasive species?
- In light of the lengthy list of exceptions included on page 17, do these rules really apply to "all development"?
- With regard to the effective date, please clarify what "complete" means with regard to applications in the pipeline, prior adopting the Draft Ordinance.
- Aerial photos from 2016 and 1993 (Page 9 Section 2) were not taken with this Draft Ordinance in mind, therefore, NVG encourages the County to take new, purpose-built and high resolution photos to align with the task of enforcing these specific regulations.

CONCLUSION

Napa County growers want to do their part and want to be part of a larger community that's doing its part. We want to see a countywide effort in realizing goals defined by Napa County's recently adopted Strategic Plan, such as "developing a balanced approach to growth based on data-informed decisions."

As an organization committed to agricultural preservation, once again, we urge the County to keep in mind the current rates of growth in the agricultural sector. For example, based on data from Napa County's Annual Crop Report, growth is slow when it comes to vineyards, which are increasing at a rate of less than a half of a percent on average, and vineyard planting is currently tracking well below the expectations written into the 2008 General Plan. Therefore, as we discuss future growth with the County, we hope that the Planning Commission will view Napa County growers as already engaged in efforts to maintain a measured, responsible approach to growth within developable areas of the County. Promoting smart and sustainable growth of responsibly-farmed agricultural land has and always will be a priority for NVG.

Sincerely,

Paul Goldberg
President, Napa Valley Grapegrowers

Garrett Buckland
NVG Executive Committee

Michael Silacci
NVG Executive Committee

Mary Maher
NVG Executive Committee

Erin Bright Russell
NVG Industry Issues Chair

Cc: Napa County Supervisors, CEO Minh Tran, Planning Director David Morrison, Brian Bordona