February 19, 2019

Sent via email and FedEx

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Re: Napa County Water Quality and Tree Protection Zoning Ordinance and Text Amendment - Comments

Dear Mr. Morrison:

The Center for Biological Diversity (the "Center") submits the following comments regarding the proposed Napa County Water Quality and Tree Protection Zoning Ordinance and Text Amendment (the "Ordinance"). Although the Ordinance shows some promise with language alluding to the goal of providing "greater environmental protection for natural environmental resources, particularly agricultural lands, forests, habitat, and water," the substance of these so-called "protections" falls disappointingly short. If approved as currently written, the County would be missing an important opportunity to exhibit the strong environmental leadership needed to protect the County's natural resources.

The Center is concerned that the County continues to dismiss available scientific information that supports the need for stronger environmental protections to preserve the natural resources that safeguard the County's residents, wildlife, and agricultural character. The recent increase in development pressures and the lack of enforcement of existing protections threaten the long-term survival of the County's special habitats, biodiversity, and culture. By failing to adopt stronger environmental protections, the County would be neglecting sound science to benefit developers while sacrificing the safety and economic stability of most of its community members. The Center urges the County to carefully consider existing, scientific evidence supporting much bolder action to preserve existing, intact, heterogenous habitats (*e.g.*, oak and riparian woodlands, chaparral, native grasslands, perennial and intermittent streams and wetlands) that stabilize slopes, keep drinking water clean, protect communities from flooding, sequester carbon, and preserve biodiversity.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 1.4 million members and online activists throughout California and the United States. The Center and its members have worked for many years to protect imperiled

plants and wildlife, open space, air and water quality, and overall quality of life for people in Napa County.

I. NAPA IS A BIODIVERISTY HOTSPOT AND THE COUNTY SHOULD PRIORITIZE PRESERVING ITS NATURAL RESOURCES.

The Ordinance should include ensuring the protection the County's unique biodiversity in Section 1, Section 18.108.010 (Purpose). Napa County is a biodiversity hotspot both within California and globally. It is located within the California Floristic Province, one of five Mediterranean biomes around the world known for high levels of plant diversity and endemism (Cowling et al. 1996; Rundel et al., 2016). Due to its dynamic topography, which ranges in elevation from 0 to 4,200 feet above mean sea level, and its varying microclimates, Napa County boasts a unique and diverse assemblage of habitats, including at least 48 vegetation types, that host numerous plants and wildlife (Napa County 2005). Despite covering only 0.5% of California's area, Napa County supports more than one third (>1100) of California's native plant species and 150 special-status plant and wildlife species, including the threatened California red-legged frog (*Rana draytonii*), the endangered Ridgway's rail (formerly the California clapper rail, *Rallus longirostris obsoletus*), and the threatened steelhead trout (*Oncorhynchus mykiss*, Central California Coast DPS (Thorne et al. 2004; Napa County 2005).

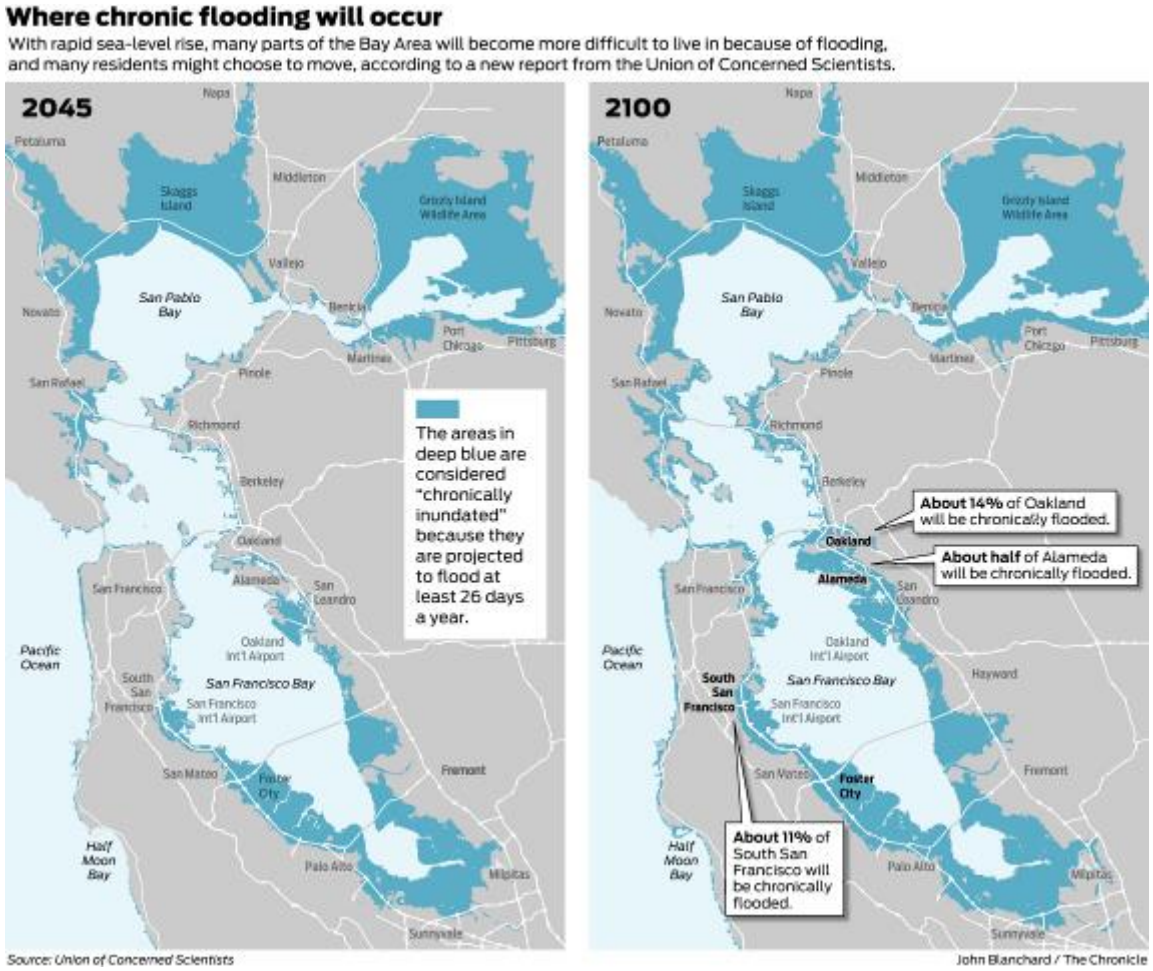
These ecosystems are the backbone of Napa's idyllic scenery, and they provide important ecosystem services vital to the County's prosperity and way of life, such as erosion control, water quality protection, groundwater recharge, flood protection, resiliency to climate change, and more. Yet the proposed Ordinance has no mention of the County's unique biodiversity and does not specifically afford it any protections despite its importance as a natural resource. Development and agricultural expansion into important habitats threaten these biological communities, the important ecosystem services they provide, and the continued long-term viability of the County's agricultural resources and economic productivity that the Ordinance purportedly aims to "ensure" (Ordinance, page 8). Thus, the Ordinance should prioritize the preservation of the County's rich biodiversity to sustain healthy ecosystems.

II. AGGRESSIVE CONSERVATION ACTION IS NEEDED TO COMBAT CLIMATE CHANGE.

A strong, international scientific consensus has established that human-caused climate change is causing widespread harms to human society and natural systems, and climate change threats are becoming increasingly dangerous. In its 2018 *Special Report on Global Warming of 1.5°C*, the Intergovernmental Panel on Climate Change ("IPCC")—the leading international scientific body for the assessment of climate change—describes the devastating harms that would occur at 2°C warming[1]. The report highlights the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth (IPCC 2018). The report also provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoid the most devastating climate change harms.

[1] The Intergovernmental Panel on Climate Change (IPCC) (2018) Special Report: Global Warming of 1.5°C. Available at: https://www.ipcc.ch/sr15/

The impacts of climate change are already being felt by humans and wildlife. In addition to warming, many other aspects of global climate are changing in response to human activities. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor (USGCRP 2017). In Napa County, climate change will result in such impacts as increased temperatures, flooding of communities from rising sea levels and increasing storm surge, reduced precipitation levels and water availability, and loss of biodiversity due to increasing species extinction (USGCRP 2017, IPCC 2018). The County needs to take rapid action to enhance the resilience of its communities and ecosystems in the face of climate change.



Communities in southern Napa County, such as American Canyon, are vulnerable to chronic flooding due to climate change. Source: Union of Concerned Scientists 2017; Alexander 2017.

III. THE PROPOSED ORDINANCE PROVIDES INSUFFICIENT RETENTION OF TREE CANOPY, SHRUBLANDS, AND GRASSLANDS.

Although the proposed Ordinance is "intended to provide greater environmental protection for environmental resources," it is grossly insufficient to prevent the County's natural resources from deteriorating. By requiring only minimal tree canopy and shrubland protections and no grasslands protections, the County ignores the best available science. Napa County deserves effective land use policies that will actually preserve and maintain the structural integrity of the County's landscape, its rich biodiversity, and the beneficial ecosystem services that its communities depend on.

A. The Ordinance's Definition of "Vegetation Canopy Cover" Does Not Encompass All Biological Communities of Concern.

The proposed Ordinance's definition of "vegetation canopy cover" is vague and does not encompass all biological communities of concern. The definition provided in Section 6 Section 18.108.030 only refers to a stand of trees as observed in the most recent aerial photo on file, while "[s]ingle trees are not considered canopy cover." (Ordinance, page 17). This suggests that some less densely populated oak woodlands may not fall within the Ordinance's definition of "vegetation canopy cover" and therefore would not be afforded any protections. According to the Oak Woodlands Conservation Act of 2001, Assembly Bill 242, oak woodlands are defined as oak stands (for any species in the genus *Quercus*) "with greater than 10 percent canopy cover or a stand that may have historically supported greater than 10 percent canopy cover."[2] Thus, the proposed Ordinance's definition of "vegetation canopy cover" could exclude areas of oak woodlands and undermine protections intended to preserve these important habitats. To align with the Ordinance's proclamations that it will "protect forests, oak woodlands, and other native trees" (Ordinance, page 7), the definition of "vegetation canopy cover" should incorporate biologically and ecologically meaningful descriptions of the targeted plant communities and allow for adaptive management based on the best available science. Thorne et al. (2004) provides detailed classification and mapping of vegetation cover in Napa County and could be a good starting point.

B. The Ordinance Should Preserve at Least 90% of Existing Forests and Woodlands.

Retention of 90% of the County's forests and woodlands would help accomplish the Ordinance's stated goal to "ensure the continued long-term viability of county agricultural resources by protecting county lands from excessive soil loss which if unprotected could threaten local water quality and quantity and lead ultimately to loss of economic productivity" (Ordinance, page 8). The Ordinance's proposed retention of 70% of existing vegetation canopy cover is insufficient and does not constitute science-based policy. According to national cropland data from the United States Department of Agriculture ("USDA"), Napa County lost almost 8,000 acres of forest (deciduous forest, evergreen forest, and mixed forest) between 2008 and

[2] Oak Woodlands Conservation Act of 2001, Assembly Bill 242. Available at: http://www.leginfo.ca.gov/pub/01-02/statute/ch_0551-0600/ch_588_st_2001_ab_242

2017, while about 5,600 acres of grapes were added in that same timeframe.[3] Although the calculated increase in grape acreage generally aligns with the County's assessment of increased croplands since 2005, the USDA's calculated forest reduction contradicts the County's claim that only about 2,400 acres of forests have been removed since 2005 (Morrison 2019). When the Center requested the data that the County used to calculate this number, the request was denied. The County's development and implementation of land use policy should be more open and transparent.

Based on County vegetation cover data (Thorne et al. 2004), tens of thousands of acres of forest, mostly consisting of oak woodlands, remain vulnerable to development in Napa County. This is alarming because oak woodlands and other wooded areas, such as pine forests and riparian woodlands, provide valuable habitat and connectivity for a wide variety of species (Bernhardt & Swiecki, 2001; Jedlicka, et al., 2014; Lawrence et al., 2011; Napa County, 2005; Tietje et al., 2015). California has already lost over a million acres of oak woodlands since 1950 (Bolsinger 1988), and riparian areas have been dramatically reduced to less than 95% of historic levels. If this pattern of forest and woodland conversion continues, Napa County will lose irreplaceable biodiversity and ecosystem services.

Forest cover plays a critical role in maintaining important water resources for clean drinking water and agriculture. Reduced forest cover has been shown to result in increased runoff (*i.e*., pollutants such as pesticides and fertilizers flowing into groundwater and surface waterways), erosion, sedimentation, and water temperatures; changes in channel morphology; decreased soil retention and fertility; and decreased terrestrial and aquatic biodiversity (Brown and Krygier 1970; Pess et al. 2002; Dahlgren et al. 2003; Houlahan and Findlay 2004; Opperman et al. 2005; Lohse et al. 2008; Elliot 2010; Lawrence et al. 2011; Moyle et al. 2011; Zhang and Hiscock 2011; Jedlicka et al. 2014). In addition, forests are an important carbon sink that can help moderate the impacts of climate change (Padilla et al. 2010; Pan et al. 2011), and some researchers argue that at a global scale, trees are linked to increased precipitation and water availability (Ellison et al., 2012). If the County continues to prioritize rapid development at the cost of strong environmental protections, these unique ecosystems and the invaluable services they provide to human communities will be lost.

Much of the County's forests and woodlands have already been lost to agricultural conversion and rural/urban development. Despite the County's assertion that current Conservation Regulations have been "successful" and have "contributed to protecting water quality" (Ordinance, page 6), land use mismanagement and lack of environmental oversight have led to degraded waterways from agricultural runoff, changes in flow, and increased erosion, sedimentation, and water temperatures (Higgins 2006; Higgins 2010). These impacts are evident in the Napa River's muddy waters and the loss of native fishes that once thrived in these waters, such as Coho salmon (which have been extirpated), and steelhead trout (Higgins 2006). Contrary to industry claims that the Napa River has been delisted from the U.S. Environmental Protection Agency's 303(d) list of impaired waters, the Napa River remains a listed impaired water due to excessive sediment and nutrient pollution from historical and current land use practices,

[3] United States Department of Agriculture (USDA) National Cropland Data can be acquired at: https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php

including vineyard conversions, grazing, and urbanization[4,5]. And although the Napa River is in the process of being *considered* for possible delisting for nutrient pollution, it is not being considered for delisting for sediment pollution.

The County cannot afford to lose more of its valuable forest and woodland habitats. Removing more trees for development will only lead to more erosion and sedimentation from destabilized soils while ramping up climate change by releasing more carbon into the atmosphere. Requiring the retention of only 70% of tree canopy is not in accordance with the Ordinance's purported goals listed in Section 1, Section 18.108.010 to "ensure the continued long-term viability of county agricultural resources by protecting county lands from excessive soil loss which if unprotected could threaten local water quality and quantity and lead ultimately to loss of economic productivity[,]…[m]inimize cut, fill, earthmoving, grading operations and other such man-made effects in the natural terrain;…[m]inimize soil erosion caused by human modifications to the natural terrain;…[m]aintain and improve, to the extent feasible, existing water quality by regulating the quantity and quality of runoff entering local watercourses;…[e]ncourage development which minimizes impacts on existing land forms, avoids steep slopes, and preserves existing vegetation and unique geologic features;… [and] [r]educe the loss of vegetation…." (Ordinance, page 8). To effectively prevent further degradation of Napa's water quality and aquatic habitats, aggressively combat climate change, and fulfill its stated goals while balancing the development needs of the community, the Ordinance should require the preservation of no less than 90% of existing forests and woodlands.

C. Shrublands and Native Grasslands Are Valuable Natural Resources That Need Greater Protections.

As mentioned previously, Napa County is within the California Floristic Province, one of 34 global biodiversity hotspots, named so because of the area's rich plant diversity and high levels of endemism. Special attention should be given to the more than 1,100 native California plant species in the County. Napa County is a rare plants hotspot; it supports five times more rare plant species than California's overall average (Napa County 2005). Special-status and rare plants occur throughout the County's diverse habitats, with a high concentration of species in chaparral/shrubland, serpentine grasslands, oak woodlands, riparian woodlands, wetlands, and rock outcrops (Napa County 2005).

The Ordinance should require a minimum of 60% retention for both shrublands and native grasslands and give high priority to intact habitats and connectivity (rather than preserving isolated patches of habitat) as well as areas containing special-status species or rare plant species. In addition, the Ordinance should require mitigation for any removal of these habitats. The proposed Ordinance's current requirement to retain only 40% of chaparral/shrubland and its lack of nearly any protections for grasslands is a severe oversight that will likely result in significant loss of biodiversity. Chaparral hosts more rare and native California plant species than any other

[4] San Francisco Bay Regional Water Quality Control Board (2018) Napa River Sediment TMDL and Habitat Enhancement Plan. Available at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/napariversedimenttmdl.html

[5] San Francisco Bay Regional Water Quality Control Board (2018) Napa River Nutrient TMDL. Available at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/naparivernutrienttmdl.html

plant community (Halsey and Keeley 2016), and most chaparral flora have high site fidelity, meaning they do not occur in other habitats or plant communities (Quinn and Keeley 2006). Chaparral also provides habitat for numerous wildlife species, both seasonally and year-round, and as a whole it supports more species of mammals, birds, and reptiles than most California ecosystems (Quinn and Keeley 2006). Native grasslands are also important habitat for numerous plant and animal species. Requiring such a low retention of chaparral, no retention of native grasslands, and no mitigation for removal of these habitats will diminish much of the County's rich biodiversity.

In addition, non-forested habitats, such as chaparral ecosystems and native grasslands, have been shown to store significant amounts of carbon within their vegetation and their soils, which makes them additional resources to help combat climate change (Koteen et al., 2011; Luo et al., 2007; Quideau et al., 1998). And like forests, these plant communities also provide other ecosystem services, such as soil stability, erosion control, and groundwater recharge (Napa County 2005). The County should prioritize protecting the thousands of acres of chaparral/shrubland and grassland vulnerable to development, which are essential to Napa's heterogeneous natural landscape.

The proposed Ordinance's limited requirements of 40% retention of shrublands and no retention of native grasslands are insufficient and will not aid the County in achieving its purported goals listed in Section 1 Section 18.108.010(B) to "[m]inimize cut, fill, earthmoving, grading operations and other such man-made effects in the natural terrain;…[m]inimize soil erosion caused by human modifications to the natural terrain;…[m]aintain and improve, to the extent feasible, existing water quality by regulating the quantity and quality of runoff entering local watercourses;… [e]ncourage development which minimizes impacts on existing land forms, avoids steep slopes, and preserves existing vegetation and unique geologic features;… [and] [r]educe the loss of vegetation…." (Ordinance, page 8). The County should require a minimum of 60% retention for both shrublands and native grasslands and give high priority to intact habitats and connectivity (rather than preserving isolated patches of habitat) as well as areas containing special-status species or rare plant species. In addition, the Ordinance should require mitigation for any removal of these habitats.

IV. THE PROPOSED ORDINANCE'S TIERED MITIGATION APPROACH IS INSUFFICIENT AND FLAWED.

The proposed Ordinance's 3:1 tiered mitigation approach for tree canopy removal is insufficient. Not only are forests and woodlands necessary to sustain the County's unique biodiversity, they are also important for many ecosystem services that the County's residents rely on for safety and economic stability, including water quality protection, carbon sequestration, erosion control, and soil retention (Brown and Krygier 1970; Elliot 2010; Lawrence et al. 2011; Moyle et al. 2011; Pan et al. 2011; Jedlicka et al. 2014). The proposed mitigation ratio of 3:1 pales in comparison to Santa Barbara County's Deciduous Oak Tree Protection and Regeneration Ordinance, which requires a 15:1 mitigation ratio (via replacement planting or protection of naturally occurring oaks between six inches and six feet tall) for removed oak trees (County of Santa Barbara 2003). The Ordinance should require appropriate mitigation measures that actually minimize project impacts.

A. The Ordinance Should Not Allow Mitigation on Slopes Greater than 30 Percent.

The provision allowing mitigation to occur on lands with slopes greater than 30% significantly undermines the Ordinance's purported goal of increasing environmental protections. As part of a proposed tiered approach to mitigation, the Ordinance allows for mitigation on slopes between 30-50% if on-site mitigation at a 3:1 ratio cannot first be accomplished on lands with slopes less than 30%. (Section 2, Section 18.108.020(D)(2), page 9.) This provision would allow project proponents to count land that is already essentially undevelopable as preservation towards meeting the 3:1 mitigation ratio. If the County is serious about mitigating project impacts, it must require preservation that actually minimizes the loss of vegetation and degradation of habitat, rather than allowing duplicative preservation of already protected land.

B. Land Consisting of Slopes Greater than 30% is Essentially Undevelopable.

Planning Staff contend there is a "nexus" for providing protection of slopes over 30% because development on these slopes can be allowed through a use permit. (Staff Report item 9C, Jan. 29 2019, page 16.) But in the same staff report, Planning Staff acknowledge the risks of allowing development on slopes greater than 30%, noting that "any proposed grading or disturbance on steep slopes has a high potential for erosion and landslide, even with proper engineering construction and management." (Staff Report, page 9.) This recognition led Planning Staff to recommend a categorical prohibition on development on slopes of more than 30%, absent an exemption. (Staff Report, page 9.) The Planning Staff properly recognized that the environmental risks inherent in steep slope development make issuance of a use permit for such development unlikely. Pursuant to the Napa County Code, in order for the County to issue a use permit for development on lands of greater than 30% slope, it must make findings concerning effective erosion control, stream protection, and impacts to plant and wildlife habitat. (Napa County Code § 18.108.040(B),(1)-(4).) Given that Planning Staff is tasked with granting Erosion Control Permits (a necessary approval for anyone seeking the above-referenced use permit) and recommend a prohibition on development on slopes over 30%, it follows that use permits would rarely, if ever, be granted for development on slopes over 30%. Allowing preservation on slopes greater than 30% to count toward the 3:1 ratio mitigation requirement is therefore a form of "double-counting," as those lands are already essentially undevelopable.

C. Preserving Undevelopable Land Does Not Mitigate the Impacts of Development.

Mitigation required by the Ordinance should meet the California Environmental Quality Act's ("CEQA") statutory standards for mitigation. Any proposed project that is subject to the Ordinance's requirements will also be subject to CEQA's mandates. (See Napa County's Local Procedures for Implementing CEQA.) Consistency with CEQA mitigation requirements will provide project proponents, the public, and decision-makers with a clear and efficient framework for the disclosure and analysis of project impacts.

The Ordinance's mitigation requirements will only achieve meaningful environmental protection if they meet or exceed long-established CEQA standards. Identifying and implementing feasible mitigation measures to avoid or reduce a project's significant environmental impacts is a core CEQA requirement. (Pub. Res. Code § 21081; *see also* 14 Cal. Code Regs § 15370.) Allowing canopy preservation on slopes greater than 30% to satisfy mitigation requirements fails to achieve the core purpose of mitigation, which is to substantially lessen or avoid the negative impacts of a proposed project. The proposed Ordinance's mitigation regime would not result in any quantifiable change in a project's anticipated environmental impacts as compared to existing conditions on the project site. Instead it would allow illusory measures with no real-world benefit in the place of environmentally beneficial mitigation measures. This does not satisfy CEQA's requirements for mitigation. *(See Lincoln Place Tenants Assn. v. City of Los Angeles* (2007) 155 Cal.App.4th 425, 445 ["A 'mitigation measure' is a suggestion or change that would reduce or minimize significant adverse impacts on the environment caused by the project as proposed"].) The Ordinance should require on-site mitigation on developable lands to secure *actual* environmental benefits, thus avoiding or minimizing a project's impacts. Preservation of land that is never in danger of being developed is not meaningful preservation.

D. The Ordinance's Mitigation Requirements Fail to Address the Loss of Carbon Sequestration from Woodland Conversion Projects.

Throughout the Strategic Plan and Ordinance processes the public has voiced significant concern about the impacts that climate change is having, and will continue to have, on Napa County's communities and natural resources. The proposed Ordinance fails to mitigate the greenhouse gas ("GHG") impacts that result from the conversion of forest and shrubland habitats. Merely requiring conversion projects to retain already protected sequestration resources does nothing to reduce the potentially significant impacts of removing mature trees and other vegetation. CEQA requires that projects' GHG impacts be assessed; as currently written, the Ordinance's proposed mitigation approach fails to ensure the reduction of GHG emissions. (*See* 14 Cal. Code Regs § 15126.4(c).) Allowing mitigation on slopes greater than 30% that would not otherwise be developed does nothing to lessen or avoid a project's GHG impacts.

E. The Ordinance's Tiered Mitigation Approach for Vegetation Canopy Should Result in Minimized Impacts.

The Ordinance should prioritize *avoiding or minimizing* impacts for all projects, prior to mitigation. When avoidance and minimization measures are infeasible, removed tree canopy should be mitigated at a *minimum* of 3:1 onsite by preserving existing habitat onsite and within developable lands (*i.e.*, on slopes with < 30% grade and outside of stream, wetland, and reservoir setbacks). The Ordinance should require that if onsite mitigation within developable land is infeasible, mitigation land shall be preserved in perpetuity on developable lands within the watershed at a ratio of 5:1. If qualifying land is unavailable within the watershed, then the County should require mitigation land to be preserved in perpetuity on developable lands as close as possible to the project and within the County at a ratio of 10:1.

V. THE ORDINANCE SHOULD PROVIDE GREATER BUFFER ZONES FOR STREAMS, WETLANDS, AND RESERVOIRS.

The requirements set forth in the proposed Ordinance will not accomplish the stated goals in Section 1 Section 18.108.010(B) to "[p]reserve riparian and wetland areas and other natural habitat by controlling development near streams, and rivers and wetlands;…[and] [p]rotect drinking water supply reservoirs in sensitive domestic water supply drainages from sediment, turbidity, and pollution through vegetation retention and no development buffers around municipal reservoirs." (Ordinance, page 8). To accomplish these goals, the Ordinance should consider the best available science and require a minimum 300-foot setback from reservoirs as well as all perennial and intermittent streams and wetlands (including vernal pools) that are within designated critical habitat, support or have the potential to support special-status and/or sensitive species, or provide connectivity and linkages to support multiple species. If the streams or wetlands are not located within designated critical habitat, do not support of have the potential to support special-status or sensitive species, and do not provide essential habitat connectivity, as determined by a qualified biologist, then a minimum100-foot buffer should be required.

Science has shown that implementing adequate buffers throughout the catchment or watershed, not just at or around the reservoir, is a more effective strategy to keep pollutants and sedimentation out of reservoirs (Norris 1993; Whipple Jr. 1993). Researchers suggest that to reduce sedimentation and pollution in drinking water supplies a minimum 300-foot buffer should be established around reservoirs, and larger buffer zones should be established around upstream channels and tributaries closer to pollution sources (such as vineyards) of sediment and other pollutants (Nieswand et al. 1990; Norris 1993; Whipple Jr. 1993). Thus, the Ordinance's proposed 200-foot buffer around reservoirs, 35- to 65-foot setbacks from streams, and 50-foot setbacks from wetlands will not adequately protect water quality from degrading due to sediment, turbidity, and other types of pollution, such as excessive nutrients (nitrogen and phosphorous) and pesticides—issues that Napa County is already facing. Larger buffer zones than those proposed in the Ordinance along streams and wetlands upstream of reservoirs would provide more stream bank stabilization, water quality protection, groundwater recharge, and flood control both locally and throughout the watershed (Nieswand et al. 1990; Norris 1993; Whipple Jr. 1993; Sabater et al. 2000; Lovell and Sullivan 2006). They would also protect communities from impacts due to climate change by buffering them from storms, minimizing impacts of floods, and providing water storage during drought(Environmental Law Institute 2008). Thus, the County should require a minimum 300-foot buffer around reservoirs with a minimum of 100- to 300-foot setbacks from streams and wetlands, depending on whether the habitat is located within designated critical habitat, supports or has the potential to support special-status and/or sensitive species, or if it provides important habitat connectivity or linkages.

In the San Francisco Bay Area, stream setbacks range between 30 – 200 feet, depending on the type of land use (*i.e.*, urban versus rural), or the quality or type of existing habitat (Robins 2002). For example, Sonoma County implements some of the more stringent setbacks, with requirements for a 200-foot buffer in the Russian River Riparian Corridor, a 100-foot buffer for flatland riparian stream corridors, and a 50-foot buffer for other riparian stream corridors[6].

[6] County of Sonoma (2008) General Plan 2020. Available at: https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/

Although smaller buffers may be locally adequate to alleviate water quality concerns in the short-term, they are often insufficient for wildlife (Kilgo et al., 1998; Fischer et al.m 2000; Semlitsch & Bodie, 2003). Streams (perennial and intermittent), wetlands (including vernal pools and salt marshes), and reservoirs throughout the County support numerous special-status flora and fauna, including steelhead trout, Chinook salmon, California freshwater shrimp (*Syncaris pacifica*), and California red-legged frogs. Many species that rely on these aquatic habitats also rely on the adjacent upland habitats (*e.g.*, riparian areas along streams, and grassland habitat adjacent to wetlands). In fact, 60% of amphibian species, 16% of reptiles, 34% of birds and 12% of mammals in the Pacific Coast ecoregion (which includes Napa County) depend on riparian-stream systems for survival (Kelsey and West 1998). Many other species, including mountain lions and bobcats, often use riparian areas and natural ridgelines as migration corridors or foraging habitat (Dickson et al, 2005; Hilty & Merenlender, 2004; Jennings & Lewison, 2013; Jennings & Zeller, 2017). Additionally, fish rely on healthy upland areas to influence suitable spawning habitat (Lohse et al. 2008), and agricultural encroachment on these habitats and over-aggressive removal of riparian areas have been identified as a major driver of declines in freshwater and anadromous fish as well as California freshwater shrimp (*e.g.*, Stillwater Sciences 2002; Lohse et al. 2008; Moyle et al. 2011). Loss of biodiversity due to lack of habitat contributes to ecosystem degradation, which will diminish a multitude of ecosystem services in the long-term. Thus, to preserve the County's valuable biodiversity in these habitats, it is important to develop and implement effective buffer widths informed by the best available science.

A literature review found that recommended buffers for wildlife often far exceeded 100 meters (~325 feet), well beyond the largest buffers implemented in practice (Robins 2002). For example, Kilgo et al. (1998) recommend more than 1,600 feet of riparian buffer to sustain bird diversity. In addition, amphibians, which are considered environmental health indicators, have been found to migrate over 1,000 feet between aquatic and terrestrial habitats through multiple life stages (Semlitsch and Bodie 2003; Trenham and Shaffer 2005; Cushman 2006; Fellers and Kleeman 2007). Specifically, the California red-legged frog, a threatened species that occurs and has designated critical habitat within Napa County, was found to migrate about 600 feet between breeding ponds and non-breeding upland habitat and streams, with some individuals roaming over 4,500 feet from the water (Fellers and Kleeman 2007). Other sensitive species known to occur in Napa County, such as western pond turtles (*Actinemys marmorata*, a candidate species under the Endangered Species Act) and California newts (*Taricha torosa*), have been found to migrate over 1,300 feet and 10,000 feet respectively from breeding ponds and streams (Trenham 1998; Semlitsch and Bodie 2003). Accommodating the more long-range dispersers is vital for continued survival of species populations and/or recolonization following a local extinction (Semlitsch and Bodie 2003, Cushman 2006). In addition, more extensive buffers provide resiliency in the face of climate change-driven alterations to these habitats, which will cause shifts in species ranges and distributions (Cushman et al., 2013; Heller & Zavaleta, 2009; Warren et al., 2011). This emphasizes the need for sizeable riparian and upland buffers around streams and wetlands in Napa County, as well as connectivity corridors between heterogeneous habitats.

The proposed Ordinance's requirements of 50-foot setbacks from wetlands and 35- to 65-foot setbacks from streams are grossly insufficient and will not slow the degradation of these important ecosystems and the services they provide. To protect Napa County's highly diverse

ecosystems and the services they provide, the Ordinance should require a minimum 300-foot setback from all perennial and intermittent streams and wetlands (including vernal pools) that are within designated critical habitat, support or have the potential to support special-status and/or sensitive species, or provide connectivity and linkages to support multiple species. If the streams or wetlands are not located within designated critical habitat, do not support or have the potential to support special-status or sensitive species, and do not provide essential habitat connectivity, as determined by a qualified biologist, then a minimum100-foot buffer should be required.

VI. THE ORDINANCE SHOULD ENSURE WILDLIFE MOVEMENT AND HABITAT CONNECTIVITY.

The proposed Ordinance provides no guidance or requirements regarding the preservation or enhancement of wildlife connectivity throughout the County. Overlooking protections for wildlife movement corridors undermines the County's ability to effectively preserve its natural resources and important ecosystem services. To accomplish the Ordinance's stated purpose to "provide greater environmental protection for natural environmental resources" (Ordinance, page 6-7), the Ordinance should require that all projects avoid or minimize impacts to wildlife movement and habitat connectivity to the maximum extent feasible by prioritizing the preservation of large, intact patches of habitat and important linkages.

Habitat connectivity is vital for wildlife movement and biodiversity conservation. Restrictions on movement and dispersal (*e.g*., development, roads, and fenced-off croplands) can negatively affect animals' behavior, movement patterns, reproductive success, and physiological state, which can lead to significant impacts on individual wildlife, populations, communities, and landscapes (Ceia-Hasse et al., 2018; Cushman, 2006; Haddad et al., 2015; Trombulak & Frissell, 2000; van der Ree et al., 2011). Individuals can die off, populations can become isolated, sensitive species can become locally extinct, and important ecological processes like plant pollination and nutrient cycling can be lost. In addition, connectivity between high quality habitat areas in heterogeneous landscapes is important to allow for range shifts and species migrations as climate changes (Heller and Zavaleta 2009; Cushman et al. 2013; Krosby et al. 2018). Loss of wildlife connectivity decreases biodiversity and degrades ecosystems. Thus, the Ordinance should include measures to ensure habitat connectivity and wildlife movement at the local and regional scale.

Wildlife connectivity and migration corridors are important at the local, regional, and continental scale. As mentioned in the previous section, local connectivity that links aquatic and terrestrial habitats would allow various sensitive species to persist, including state- and federally-protected California red-legged frogs and western pond turtles. At a regional scale, medium- and large-sized mammals that occur in Napa County, such as mountain lions (*Puma concolor*), bobcats (*Lynx rufus*), gray foxes (*Urocyon cinereoargenteus*), ring-tailed cats (*Bassariscus astutus*), and mule deer (*Odocoileus hemionus*), require large patches of heterogeneous habitat to forage, seek shelter/refuge, and find mates. At a global scale, Napa County is an important stop for about 400 resident and migratory bird species within the Pacific Flyway, a north-south migratory corridor the extends from Alaska to Patagonia. For example, while Anna's hummingbirds (*Calypte anna*) often reside in Napa County's chaparral, oak woodlands, and riparian areas year-round, Allen's hummingbirds (*Selasphorus sasin*) migrate from Mexico in the

spring to nest in Napa's oak woodlands and riparian areas, and rufous hummingbirds (*Selasphorus rufus*) migrate through Napa on their way to and from their breeding grounds in Canada and their over-wintering grounds in the Gulf Coast. In addition, anadromous fish, such as Chinook salmon and steelhead trout, are born in some of Napa's waterways, spend several years in the Pacific Ocean, and return to Napa to spawn. Napa County is a critical hub for local and global biodiversity; wildlife movement and habitat connectivity must be maintained throughout the County. The Ordinance should require all development projects to take impacts on wildlife movement and habitat connectivity into consideration.

VII. THE ORDINANCE SHOULD APPLY TO ALL PENDING AND NEW DEVELOPMENT.

The Ordinance's environmental protections should apply to all types of pending and new development, including agricultural projects of five acres or less on slopes less than 15% grade that are currently proposed to be exempt from the Ordinance (Ordinance, page 5). Cumulative impacts from smaller projects can add up and have a significant impact on watershed health. Studies have shown that land use patterns at the watershed scale are correlated with water quality, carbon sequestration, and the level of species abundance and biodiversity (Pess et al. 2002; Opperman et al. 2005; Lohse et al. 2008; Padilla et al. 2010; Grantham et al. 2012). For example, higher levels of vineyard/agricultural conversion and exurban development within watersheds have been associated with increased fine sediment inputs to streams (Opperman et al. 2005; Lohse et al. 2008), reduced diversity of aquatic macroinvertebrates (Lawrence et al. 2011), reduced abundance and diversity of native fishes (Pess et al. 2002; Lohse et al. 2008), and reduced carbon sequestration (Padilla et al. 2010). These studies indicate that land use planning and policies need to consider impacts at the watershed scale to implement effective environmental protections that actually safeguard important natural resources like water quality and erosion control. To do so will require that the Ordinance apply to all development projects in the County.

VIII. THE COUNTY SHOULD FOCUS ON FIRE-RESISTANT RETROFITTING AND DEFENSIBLE SPACE FOR FIRE SAFETY.

The Center urges the County to protect human lives, property, and native biodiversity by adapting strategies for communities to coexist with wildfires. Napa County should help communities safely co-exist with fire by prioritizing the implementation of proven fire-safety measures. Structures with fire-resistant features, such as ember-resistant vents, fire-resistant roofs, 100 feet of surrounding defensible space, rain gutter guards, and external sprinklers with an independent water source, have been shown to reduce the risk of destruction due to wildfires (Quarles et al. 2010; Syphard et al. 2014; California Chaparral Institute 2018). However, although these fire-resistant structural features are important, fire safety education and enforcement for home and property owners are vital for these safety measures to be effective. Proper maintenance and upkeep of the structural fire-resistant features and the immediate surroundings (*e.g.*, removing leaf litter from gutters and roofing; removing flammable materials like wood fences, overhanging tree branches, or trash cans away from the home) are required to reduce the chances of the structures burning. In addition, education about how to prevent fire ignitions for Napa County communities would further reduce fire risk. The Ordinance should

include language that specifies using the best available science to reduce wildfire risk for residents and structures.

IX. THE ORDINANCE SHOULD PROVIDE SPECIFIC, MEASURABLE PARAMETERS FOR ASSESSING ENVIRONMENTAL IMPACTS AND COMPLIANCE

The proposed Ordinance frequently fails to provide language specific enough to determine which requirements apply and how compliance can be achieved. Below are just a few examples.

In Section 2, Section 18.108.020, (D)(2) states that "[i]f sufficient vegetation canopy cover to achieve the 3:1 ratio in full or in part cannot be accomplished under subsection (D)(1) of this section, on-site preservation or replacement may occur on slopes greater thirty one percent and up to fifty percent in areas that result in the highest biological and water quality protections as determined by the director." (Ordinance, page 9).[7] Understanding that the text is meant to read as "…on slopes greater than thirty percent and up to fifty percent…," the Ordinance should enumerate the factors the County will consider when determining that preserving certain areas between 30 to 50 percent slope would result in the "highest biological and water quality protections." Similarly, in (D)(3) of the same section, the proposed Ordinance states that "[i]f sufficient vegetation canopy cover to achieve the 3:1 ratio in full or in part cannot be accomplished under subsections (D)(1) and (D)(2) of this section, off-site replacement or preservation may occur if it is within the same watershed and the habitat is of the same or better quality as determined by the director." (Ordinance, page 9). The Ordinance should provide concrete parameters for how the County will assess whether habitat would have the same or better quality as the vegetation canopy cover that would be removed.

Similarly, the Ordinance is less than clear in Section 3, Section 18.108.025(E), where it describes permitted uses within required stream setbacks. According to (E)(12) of that section, "[i]nstallation of stream crossings, recreational roads, and equestrian and nonmotorized trails in accordance with appropriate permits from other state, federal and local use permit requirements when it can be determined by the director that the least environmentally damaging alternative has been selected as a part of an approved project." The Ordinance should be revised to clarify how the County will determine how the "least environmentally damaging alternative" would be selected and implemented.

Likewise, in Section 3, Section 18.108.025(F) regarding construction fencing to protect stream setbacks, wetlands, and other features, the proposed Ordinance states "[w]here appropriate, the director may require an applicant to install and maintain construction fencing, or other means of demarcation acceptable to the director, in a manner that protects stream setback areas, wetlands, wildlife corridors, sensitive areas and other protected features from intrusion or disturbance during land clearing and earth-disturbing activities." Again, the Ordinance should specify what would constitute an "appropriate" area and situation for the installation of construction fencing or what other means of demarcation might be "acceptable" to the director.

[7] As described above, the proposed Ordinance's tiered approach to mitigation, which allows mitigation to occur on slopes over 30%, is otherwise flawed.

Another instance requiring more specific language is Section 8, Section 18.108.050 (J), which provides that the following activity is exempt from the Ordinance:

> "Land clearing, earthmoving and/or grading pursuant to a permit other than a timberland conversion permit or a notice of less than three-acre conversion exemption (or similar exemption process) issued by: (1) a state or federal agency in compliance with applicable provisions of state or federal laws or regulations where adequate erosion control measures as determined by the county of Napa have been incorporated as part of the project or (2) by a city in relation to city-owned property exempt from the zoning regulations of the county of Napa. This exception only applies to those portions of the project specifically authorized by the state or federal permit involved. Components or parts of the project not specifically authorized by a state or federal permit shall be subject to this chapter…"

(Ordinance, page 20). The Ordinance should clarify what constitutes "adequate erosion control measures as determined by the county of Napa." Otherwise, consistent enforcement will be difficult, if not impossible.

In contrast, an example of where the proposed Ordinance provides adequate specificity and guidance is in Section 16 Section 18.108.140 (A1c), in which the director determines whether or not an area has a severe soil erosion hazard "based on the Napa County Soil Survey prepared by the Federal Resource Conservation Service…." (Ordinance, page 29). The Ordinance should provide the necessary guidance for consistency, enforcement, and compliance.

X. THE ORDINANCE SHOULD ENSURE THAT THE PUBLIC IS INCLUDED IN THE ORDINANCE DEVELOPMENT PROCESS AND HAS AMPLE NOTICE OF ANY FUTURE CHANGES TO THE ORDINANCE.

Given the history of controversy surrounding the issues addressed in the Ordinance and the public's demonstrated interest in actively participating in these matters, the Ordinance should ensure that any future changes are presented to the public with enough time to allow for meaningful deliberation and input. Accordingly, the Ordinance should include a provision stating that the public will be provided with at least 60 days' notice of any future amendments to the Ordinance, and that the public notice shall include both a certified copy of the full text of the proposed amendments and a summary of the proposed amendments. Furthermore, the Ordinance should require that staff prepare a report analyzing the potential environmental effects (whether positive or negative) of any such proposed amendments, to be published along with the text and summary of the proposed amendments and included in the 60-day notice. Any such report should be prepared independently of whether the ordinance is considered a "project" requiring environmental review under CEQA. The Ordinance should additionally provide that the Board will hold a hearing to receive and consider public comment on the amendments, summary, and environmental analysis at least 30 days before the meeting during which the Board considers adopting the amendments.

XI. CONCLUSION

This Ordinance provides an opportunity for the County to exhibit strong environmental leadership and preserve Napa's unique ecosystems and the valuable services they provide; however, as it is currently written, the proposed Ordinance falls short. The proposed Ordinance will not accomplish its purpose to "provide greater environmental protection for natural environmental resources including water quality, biological productivity, and the economic and environmental value of Napa County's streams, watersheds, wetlands, sensitive domestic water supply reservoirs, trees, and forests, and to safeguard the public health, safety and welfare of the County's residents" (Ordinance, page 6-7). The County must not ignore the best available science, which emphasizes the urgency of bold, forward-thinking, climate-wise environmental protections to safeguard the County's future. Without stronger environmental protections to protect large setbacks from streams, wetlands, and reservoirs and retain soil-stabilizing, pollution-filtering, and carbon-sequestering forests, shrublands, and native grasslands, the county will suffer from degraded ecosystems that will lead to erosion, poor water quality, less water and groundwater availability, less protection from storm events and flooding, and loss of biodiversity.

Thank you for the opportunity to comment on the Napa County Water Quality and Tree Protection Zoning Ordinance and Text Amendment. We look forward to working with the County to ensure that it integrates climate-wise land use policy to preserve its unique natural landscapes, biodiversity, ecosystem services, and culture. Please do not hesitate to contact the Center with any questions at the number or email listed below.

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