Appendix E: Agriculture and Forestry

Introduction

Sonoma County's forestry and agricultural sectors provide opportunities to sequester carbon. Preserving and expanding forests and agricultural lands protect Sonoma County's iconic beauty as well as the climate. Sonoma County voters created and continue to support the Agriculture Preservation and Open Space District that has protected over 106,000 acres from development resulting in carbon sequestration, avoided emissions from habitat removal, and from avoided vehicle miles traveled. Additional lands have been protected by Sonoma County Parks, Sonoma Land Trust, and other non-profit organizations. Programs that encourage farmers and ranchers to follow sustainable practices help sequester carbon in soils and plants as well as reduce methane emitted by livestock and manure.[1] Research currently underway, notably that of the Sonoma County Agriculture Preservation and Open Space District's Climate Action through Conservation project, are likely to identify actions that will have a big impact on the reduction of GHG emissions in this sector.

Key Recommendations:

	Recommendation	Communities Employing Recommendation	Sonoma County Status and Applicability
7.1	Support agricultural practices that increase carbon sequestration	Marin County, Snohomish County	Sonoma County has extensive rangelands and farmlands, as well as resources to proliferate best practices in sustainable farming and ranching
7.2	Support forestry practices that increase carbon sequestration	Arcata, New York, Philadelphia, Portland, Sacramento	Many of Sonoma County's forests and orchards have been cut to make way for vineyards and suburban development. A reversal of this trend will be imperative to maximize carbon sequestration.

7.1 Support agricultural practices that increase carbon sequestration

Background

Sustainable agricultural practices increase the ability of the land to sequester carbon while enhancing other ecosystem services such as improved fertility, and improved soil and water quality. A big recent boost for action came from the Sonoma County Winegrape Commission that announced Sonoma County's commitment to becoming

1 According to Sonoma County's 2011 GHG inventory, emissions from agricultural comprise one-tenth of the County's total emissions. http://climateprotection.org/wp-content/uploads/2012/12/2011-GHG-Report-for-Sonoma-County-Nov-12-2012.pdf

the nation's first 100 percent sustainable wine region.[2] This commitment will inspire others in the agriculture sector to follow suit. Sonoma County could tap its academic institutions, Sonoma State University and Santa Rosa Junior College, as well as the many innovative local farmers and ranchers for assistance in promoting sustainable farming and ranching practices.

Strategies to Consider:

A. Explore rangeland carbon sequestration
B. Provide technical assistance in sustainable farming for Sonoma County farmers

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A. Explore rangeland carbon sequestration

Sonoma County has significant rangelands that might be substantial carbon banks. Learning from already existing projects, Sonoma County has an opportunity to use one of its greatest assets – open space – to sequester carbon.

In **Marin County**, the Marin Carbon Project was formed to establish the basis for soil carbon sequestration on local rangelands (grazing lands on ranches and wide open spaces). The Marin Carbon Project emphasizes the value of local soil carbon sequestration to provide ecological and agricultural benefit to rural communities while making full use of educational opportunities in regard to climate change. The project is a collaboration of UC Berkeley, UC Davis, UC Cooperative Extension, Marin Organic, Marin Agricultural Land Trust, Marin Resource Conservation District, the USDA Natural Resources Conservation Service, and Nicasio Native Grass Ranch. It is also supported by the Marin County Agriculture Commissioner and the Environmental Defense Fund. The project has now completed soil surveys to establish pre-existing levels of carbon in Marin's rangeland soils. This baseline data will allow the accurate assessment of how much carbon is sequestered over time. In this process, the project is helping to establish an accredited baseline rangeland soil carbon measuring methodology. This could help other soil carbon sequestration projects and rangeland ecosystems throughout California and beyond. Whichever land management practices prove to sequester carbon in a way that is economically viable, the Marin Carbon Project and its partners will help ranchers and rangeland managers maximize financial compensation available as a result.[3]

B. Provide technical assistance in sustainable farming for Sonoma County farmers

Sonoma County has several institutions for higher learning, as well as a community of farmers versed in sustainability who can help to spread sustainable farming practices throughout the region.

In **Snohomish County**, Washington State University Extension provides the technical assistance to County farmers to help them be successful. The agriculture program is educating farmers on no- till and reduced- till practices that reduce fuel consumption by equipment. Cover crops and organic farming techniques that reduce use of petroleum-based inputs are also being taught as methods to reduce energy consumption on the farm. A project is being developed with the U.S. Navy through the City of Everett that could provide a much bigger market for biofuels. WSU is working with Snohomish County, the Tribes, and a wide variety of stakeholders to develop a "Sustainable

2 http://www.sonomawine.com/blog/sonoma-county-become-nations-first-100-sustainable-wine-region
3 http://www.marincarbonproject.org/

Lands Strategy" for Snohomish County that balances the preservation of farmlands with habitat restoration objectives.[4]

7.2 Support forestry practices that increase carbon sequestration

Background

Many of Sonoma County's forests and orchards have been cut to make way for vineyards and suburban development. A reversal of this trend is imperative to maximize carbon sequestration while creating co-benefits such as restoring wildlife habitat, reducing urban heat island effects, and improving local air and water quality. Sonoma County already has experience preserving lands for carbon sequestration. Buckeye Forest, formerly known as Preservation Ranch, is part of The Conservation Fund's North Coast Forest Conservation Initiative. Threatened by development and vineyard conversion, the Conservation Fund purchased the nearly 20,000-acre property so that the land could be managed sustainably for timber, carbon sequestration, and restoration of coho salmon habitat.[5]

In addition to preserving wild lands, planting new trees, especially in suburban settings, will also sequester carbon and offer co-benefits, including providing shade to reduce the need for air conditioning, improving air and water quality, and mitigating the urban heat island effect.

Strategies to Consider:

A. Continue to preserve forests that sequester carbon
B. Set and achieve a reforestation goal

A. Continue to preserve forests that sequester carbon

Buckeye Forest (formerly known as Preservation Ranch) in Sonoma County is the latest installment in The Conservation Fund's North Coast Forest Conservation Initiative. Threatened by development and vineyard conversion, the Conservation Fund purchased the nearly 20,000-acre property in northern California in 2013. As owners, they vow to sustainably manage the land for timber, carbon sequestration and restoration of coho salmon habitat. More than a decade ago, the Fund set out to reassemble what was once a single forested property stretching nearly 30 miles along the rugged North Coast range. Over time, this land was divided and sold into multiple parcels, including Buckeye Forest. The Conservation Fund also purchased the Garcia River Forest in 2004 and the adjoining Gualala River Forest in 2011. The Buckeye acquisition completes the efforts to reunite the larger forest.[6] Sonoma County must continue to prioritize the preservation of forests and to expand these efforts as a part of its carbon sequestration strategy. The County should consider a carbon offset program in conjunction with these efforts.

4 Page 21 of Snohomish's Sustainability Report, 2011:
http://www.co.snohomish.wa.us/documents/County_Services/Climate_Energy/SustainReport030811.pdf
5 http://www.conservationfund.org/projects/buckeye-forest/
6 http://www.conservationfund.org/projects/buckeye-forest/

In **Arcata**, the Arcata Community Forest, established in 1955, is comprised of 2,350 acres of second growth redwood forest in Humboldt County. The forest generates money through its carbon offset program in partnership with Terrapass.[7]

B. Set and achieve a reforestation goal

Although Sonoma County has many forested acres, these should be augmented, both in suburban settings and in previously forested areas. The County should set firm goals with deadlines, funding, and specific actions, such as changing zoning and providing incentives, to preserve and expand its forests.

New York City's goal is to plant one million trees to increase its urban forest by 20 percent. The City of New York will plant 70 percent of trees in parks and other public spaces. The remaining 30 percent will come from private organizations, homeowners, and community organizations.[8]

The **City of Philadelphia** has a specific plan for increasing tree coverage to 30 percent in all neighborhoods by 2025.[9] The plan includes launching a local carbon offset market, providing incentives for preserving large trees, revising the zoning code for trees in surface parking lots, prioritizing tree planting in low-canopy, high-crime areas, and establishing seasonal tree maintenance.

The **City of Portland's** goal is to expand the urban forest canopy to cover one-third of Portland, and to have at least 50 percent of total stream and river length in the city meet urban water temperature goals as an indicator of watershed health.[10] Over 7,000 trees were planted in Portland in 2011 through a variety of programs, including partnerships with Friends of Trees and the Youth Conservation Crew. The City's Neighborhood Tree Stewards Program (a volunteer training course) provided participants tools and knowledge to lead urban forestry projects.[11]

The **City of Sacramento's** goal in the Greenwise Action Plan is to plant 5 million trees by 2025. To reach that goal, 3 million trees will need to be taking root by 2020. The Greenwise implementation team will track progress on Sacramento tree planting through the tree counter posted on the Sacramento Tree Foundation website.[12]

7 http://www.cityofarcata.org/departments/environmental-services/city-forests
8 http://www.milliontreesnyc.org/html/about/about.shtml
9 Page 21 of Philadelphia's 2013 Progress report: http://www.phila.gov/green/PDFs/Greenworks2013ProgressReport_Web.pdf
10 Page 11 of Portland's CAP: http://www.portlandonline.com/shared/cfm/image.cfm?id=25050
11 Page 16 of Portland's CAP update: http://www.portlandoregon.gov/bps/article/393345
12 Page 31 of the Greenwise Sacramento Regional Plan: http://uptownstudios.net/greenwise/