

The Value of Conserving Taylor Mountain

THE HEALTHY LANDS AND HEALTHY ECONOMIES INITIATIVE

CASE STUDY



**AG +
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SONOMA COUNTY

CONTEXT

Taylor Mountain Regional Park and Open Space Preserve is 1,100 acres of grasslands, oak woodlands, and creeks adjacent to the city of Santa Rosa, and within walking distance of several schools and economically disadvantaged communities. Between 1996 and 2011, Ag + Open Space invested \$26 million to lead the conservation of the land, a property with 38 development rights, that was at high risk of residential development. In 2013, Ag + Open Space transferred the land to Sonoma County Regional Parks, creating the park and preserve.

With 5.5 miles of trails, a disc-golf course, picnic areas, and a variety of wildlife habitats, Taylor Mountain provides many opportunities for recreation. The park is within easy reach of Sonoma County's largest city, drawing more than **100,000 visits** in 2014, only the second year of public access. In addition, the Taylor Mountain landscape sequesters carbon that would have otherwise been lost through residential development, and provides open space that facilitates natural groundwater recharge.

Researchers from Sonoma State University and Conservation Strategy Fund assessed the value of three of the natural capital services provided by the protected lands: carbon sequestration, water supply, and recreation. Other valuable services provided by the landscape — such as natural beauty, air quality, habitat, and soil retention — were not quantified in the study.

METHODS

To calculate the carbon sequestration value of preserving Taylor Mountain, the researchers evaluated the amount of carbon that would have been released if Taylor Mountain had been developed by comparing the estimated carbon content in Taylor Mountain's 1,100 acres — based on satellite land cover data — with similar parcels elsewhere in the county that had already been developed.

For the water supply value, annual average water percolation on Taylor Mountain was estimated by Sonoma Water using a groundwater flow model developed for the region by the U.S. Geological Survey. The cost for an alternative engineered system was provided by Sonoma Water based on real costs for similar systems built in residential neighborhoods.

Lastly, for the recreation value, the researchers surveyed 439 Taylor Mountain visitors to develop a travel-cost analysis — a valuation based on the principle that the recreation services provided by a landscape must be worth at least as much as the costs that visitors incur to travel to the site. From the survey data, the researchers calculated the average travel cost associated with visiting Taylor Mountain at \$14.39 per person per visit. Multiplying that figure by the number of visits each year yielded a figure for the park's total annual recreational value. Increased usage of the park and preserve since the survey data was collected has likely increased the total recreational value from the original estimate.



FINDINGS

Value: CARBON SEQUESTRATION

Clearing land for residential development results in substantial releases of the carbon stored in soils and woody vegetation and prevents future sequestration by forests and grasslands. The analysis showed a clear carbon benefit from conserving the land, though with a wide range of estimated values — from 14 to 120 tonnes of carbon dioxide equivalent (tCO₂e) per acre. The value of this natural capital service depends on how much avoided emissions are worth. Based off of U.S. Environmental Protection Agency standards, a range of \$5 to \$100 per tCO₂e for the value of emissions combined with the range of estimated carbon benefits from conserving Taylor Mountain was used. This yields an estimated total carbon sequestration value for Taylor Mountain of more than **\$12 million.**

Value: RECREATION

The researchers estimated Taylor Mountain's total recreation value at **\$1.55 million** per year. That's equivalent to a net present value — the value of the recreation amenity in perpetuity, assuming a 3% discount rate — of \$51.8 million. Survey data also showed that the median household income of visitors to the park is similar to that of Sonoma County as a whole, suggesting that the park is enjoyed by a representative cross-section of residents.

Value: WATER SUPPLY

The open spaces on Taylor Mountain provide for rainwater percolation that replenishes local groundwater at an estimated rate of 81 acre-feet per year. Providing that same service with an engineered water infiltration system would cost **\$200,000 to \$400,000** for construction, plus operation and maintenance costs of roughly \$5,000 per year.





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Sonoma County Ag + Open Space permanently protects the diverse agricultural, natural resource and scenic open space lands of Sonoma County for future generations. We are responsible for the perpetual protection of over 116,000 acres of land throughout our region. These agricultural and open space lands are protected through a quarter-cent sales tax approved by voters in 1990 and reauthorized in 2006. For more information, please visit www.sonomaopenspace.org.



THE HEALTHY LANDS AND HEALTHY ECONOMIES INITIATIVE

The Healthy Lands and Healthy Economies Initiative documents the economic value and community benefits of natural and working landscapes. This research helps to show that Sonoma County's investments in land conservation pay real dividends, now and into the future. This Initiative would not have been possible without contributions from the Gordon and Betty Moore Foundation, the S. D. Bechtel, Jr. Foundation, and the California State Coastal Conservancy.

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AVAILABLE AT: www.sonomaopenspace.org/HLHE

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