



Nature's Benefits from Your National Forests

The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

The Agency's 154 national forests and 20 grasslands engage in quality land management that offers multi-use opportunities to meet the diverse needs of people. Forest ecosystems are human, plant, and animal life-support systems that provide a suite of goods and services vital to human health and

livelihood—essentially Nature's Benefits, also called Ecosystem Services. Benefits from healthy forest ecosystems include: water supply, filtration and regulation (flood control); habitat for native wildlife and plants; carbon sequestration; jobs, commerce, and value to local economies; recreational opportunities and open space for communities; increased physical and psychological wellness; cultural heritage; wood and other non-timber forest products; energy; clean air; and pollination.

Do You Know Which Nature's Benefits Come from the Stanislaus National Forest?

Water: In drought-prone California, the quantity, quality, and timely provision of our water is dependent on the health of our national forests. The forests supply, filter, and regulate water from upper watersheds and meadows, providing clean water throughout the year to communities, homes, and wildland habitats. Water also helps support jobs and industries that are water-dependent.

- About 2.1 million acre-feet of water per year come from the Stanislaus National Forest¹
 - Or over 708 billion gallons per year



That equates to:

- Over 1 million Olympic-size swimming pools
- Enough drinking water for California's population for more than 60 years², or
- Enough water for over 5.3 million households for a year³

How much is 708 billion gallons worth?

- Estimated wholesale market value: over \$205 million⁴
- Cost to Los Angeles households: over \$23.3 billion⁵

SOURCES

¹Brown et al., 2016- Mean annual renewable water supply of the Contiguous United States. <https://www.fs.fed.us/rmrs/documents-and-media/really-mean-annual-renewable-water-supply-contiguous-united-states>

²Per the National Health and Nutrition Examination Surveys, the average American consumes ~299 gallons/year of water, through both drink and food ³Assuming 362 gallons/day - <http://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf>

⁴Using CA water market prices, appropriated by sector - https://www.fs.fed.us/rm/value/docs/marginal_economic_value_streamflow_forests.pdf 5100 gallons/day + monthly water bill of ~\$100.14 - <http://www.circleofblue.org/waterpricing/>



Nature's Benefits

Stanislaus National Forest

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Carbon: The National Forests of California play an important role in parts of the climate cycle; acting as carbon storage and sequestration units. Forests retain carbon from being emitted to, and absorb carbon dioxide (CO₂) from, the atmosphere, which helps reduce the impacts of a warming climate to human, plant and animal habitats.



- The Stanislaus National Forest stores about 88 Million Metric Tons (MMT) of Carbon on its forest⁶
- Sequesters on average .14 MMTC annually; this equates to enough to drive around the earth 48,821 times.

Local Economies: The economy of California is fifth largest in the world, and California's National Forests contribute almost \$2.6 billion annually in wages and income to small businesses,⁷ a critical component of the rural economy of the state.



The Stanislaus National Forest supports:

- About \$96.5 million annually in labor income for wage earners and local businesses⁸
 - Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.
- About 2,210 jobs annually⁹

Recreation: The Stanislaus National Forest provides a place for people to find open space, experience wildlife, recreate, relax, and otherwise remove themselves from the stressors of everyday life and urban sprawl.



Many methods exist to calculate the benefits from recreation and the value of those benefits to visitors and local economies. The following provide some estimations of those values:

- Over 1 million people visit the Stanislaus National Forest to recreate annually, which represents an economic value of over \$88 million to those visitors¹⁰
- Visitors to the Stanislaus National Forest spend about \$73 million during their trips¹¹
- Visitors to the Stanislaus National Forest contribute about \$36 million towards wages and income of local businesses¹²

The Stanislaus National Forest landscape includes diverse recreation opportunities such as water recreation (fishing, swimming, and rafting) as well as camping, picnicking, and green space for activities that support human wellness and cultural traditions.¹³

- 1,740 lakes and ponds
- 3,253 miles of rivers and streams
- 1,145 miles of trails

SOURCES

⁶<https://bofdata.fire.ca.gov/projects-and-programs/ab-1504/>

^{7, 8, 9}Job and Income Contributions for 2014-At A Glance-Region, <https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml> ¹⁰NVUM, R5 Calculations based on GTR-957 - Rosenburger et al., 2017 - <https://www.fs.usda.gov/treearch/pubs/54602>

¹¹R5 Calculations based on GTR-961 - White, 2017- https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf

¹²<https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml>

¹³Enterprise Data Warehouse



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- 215,753 acres of wilderness
- 11 miles of Wild and Scenic Rivers
- 52 developed campgrounds
- 13 developed picnic areas

People visit their National Forests to engage in specific activities that provide value to them from their experiences as shown below:

- Over 136,000 people visit the Stanislaus National Forest annually to hike as their main activity, which represents an economic value of about \$11.7 million to those visitors.¹⁴
- Over 157,000 people visit the Stanislaus National Forest annually to view wildlife and natural features as their main activity, which represents an economic value of over \$10 million to those visitors.¹⁵
- Over 102,000 visit the Stanislaus National Forest annually to fish and hunt as their main activity, which represent an economic value over \$9.2 million to those visitors.¹⁶

Habitat: Forest Habitats and Biodiversity are key to ecological function; a forest's daily function in turn allows all of Nature's Benefits, from water to recreation, to continue to be provided for humans to enjoy.



The Stanislaus National Forest hosts a multitude of key habitats for animals and plants.

- 6 Threatened and Endangered Species can be found on the Stanislaus National Forest that include: California red-legged frog, Yosemite toad, fisher, Sierra Nevada red fox, Lahontan cutthroat trout.¹⁷

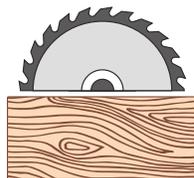
- 1,499 meadows¹⁸

Energy: The Stanislaus National Forest energy infrastructure provides power generation for public benefit and includes



- Installed hydro plant capacity of approximately 555 megawatts, which could meet the power needs of more than 416,500 households¹⁹

Timber & Wood Products: Wood harvested from California's National Forests support forest health, jobs, and provide products for everyday use.



On average for Fiscal Years 2017, 2018 & 2019, the Stanislaus National Forest:

- Sold about 25,518 thousand board feet (MBF) of Timber,²⁰ and

SOURCES

14, 15, 16 R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

17 Master R5 TE Species List 20191016; <https://ecos.fws.gov/ipac/>

18 UC Davis, Center for Watershed Sciences & USDA Forest Service, Pacific Southwest Region, 2017. Sierra Nevada Multi-Source Meadow Polygons Compilation (v 2.0), Vallejo, CA, Regional Office: USDA Forest Service. 2017. <http://meadows.ucdavis.edu/>

19 June 2016 R5 Inventory of FERC Licensed Hydropower projects

20 PTSAR Reports: <https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml> 21 Cut/Sold reports: <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml>

- Cut approximately 30,697 MBF of Timber, annually²¹

This cut timber has an estimated value of over \$12 million²² and:

- Produced about 16,500 MBF of lumber, and is
 - Worth about \$6.4 million
- Produced over 50,295 bone dry tons of wood for biomass energy, or
 - Enough to power over 7,185 homes for

the year, and is

- Worth over \$5.5 million
- Produced over 2,900 tons of landscaping material, and is
 - Worth over \$29,000
- In addition, the Stanislaus National Forest:
 - Sold about 2,590 cords of firewood, worth over \$11,146

SOURCES

²²R5 analysis based on cut-sold report and McIver et al., 2015 - https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf