



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 Shasta-Trinity 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 5.7 million acre-feet of water per year come from the Shasta-Trinity National Forest¹
 - Or about 1.8 trillion gallons per year

That equates to:

- Over 2.8 million Olympic-size swimming pools
- Enough drinking water for California's population for more than 159 years², or
- Enough water for over 14.1 million households for a year³

How much is 1.8 trillion gallons worth?

- Estimated wholesale market value: over \$540 million⁴
- Cost to Los Angeles households: over \$61.4 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/>



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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 Shasta-Trinity National Forest stores about 231 Million Metric Tons (MMT) of Carbon in its forest⁶
- Sequesters on average .60 MMTC annually; this equates to enough to drive around the earth 216,249 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 Shasta-Trinity National Forest supports:

- About \$117.9 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 2,420 jobs annually⁹

Recreation: The Shasta-Trinity 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 950,000 people visit the Shasta-Trinity National Forest to recreate annually, which represents an economic value of over \$71.6 million to those visitors¹⁰
- Visitors to the Shasta-Trinity National Forest spend about \$48 million during their trips¹¹
 - As an example, 5,000 visitors annually climb the 14,179 foot iconic Mt. Shasta by purchasing Special Use Permits, totaling \$176,213¹²
- Visitors to the Shasta-Trinity National Forest contribute more than \$15 million towards wages and income of local businesses¹³

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 (FY2018), 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

¹²Data Records, USFS Point of Sale

¹³<https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml>



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The Shasta-Trinity National Forest landscape includes diverse recreation opportunities such as water recreation (guided and unguided fishing and rafting), swimming, as well as camping, picnicking, and green space for activities that support human wellness and cultural traditions.¹⁴

- 584 lakes and ponds
- 9,542 miles of rivers and streams
- 2,058 miles of trails
- 507,061 acres of wilderness
- 274 miles of Wild and Scenic Rivers
- 78 developed campgrounds
- 15 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 155,000 people visit the Shasta-Trinity National Forest annually to hike and walk as their main activity, which represents an economic value of over \$13 million to those visitors.¹⁵
- Over 75,000 people visit the Shasta-Trinity National Forest annually to pursue motorized water activities as their main activity, which represents an economic value of over \$5 million to those visitors.¹⁶

- Over 120,000 visit the Shasta-Trinity National Forest annually to fish as their main activity, which represent an economic value over \$10 million to those visitors.¹⁷
- Over 17,000 people visit the Shasta-Trinity National Forest annually to engage in traditional gathering (mushrooms, basketry material) as their main activity, which represents an economic value of over \$1 million to those visitors.¹⁸

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 Shasta-Trinity National Forest hosts a multitude of key habitats for animals and plants.

- 11 Threatened and Endangered Species can be found on the Shasta-Trinity National Forest that include: Central Valley Steelhead, marbles murrelet, northern spotted owl, California red-legged frog, Southern Oregon/northern California coho salmon, fisher.¹⁹
- Over 2,500 species of flowering trees, shrubs and wild flowers provide food for pollinators, many of which also pollinate food crops.

SOURCES

¹⁴Enterprise Data Warehouse

^{15, 16, 17, 18}R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

¹⁹Master R5 TE Species List 20191016; <https://ecos.fws.gov/ipac/>

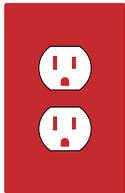


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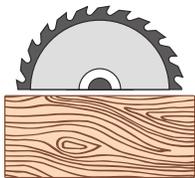
Energy: The Shasta-Trinity National Forest



energy infrastructure provides power generation for public benefit and includes

- Installed hydro plant capacity of approximately 525 megawatts, which could meet the power needs of more than 394,000 households²⁰

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 & 2017, the Shasta-Trinity National Forest:

- Sold about 21,217 thousand board feet (MBF) of Timber,²¹ and
- Cut over 30,000 MBF of Timber,

annually²²

This cut timber has an estimated value of over \$10.6 million²³ and:

- Produced over 15,000 MBF of lumber, and is
 - Worth about \$6 million
- Produced over 38,000 bone dry tons of wood for biomass energy, or
 - Enough to power over 5,400 homes for the year, and is
 - Worth over \$4.2 million
- Produced over 2,800 tons of landscaping material, and is
 - Worth almost \$28,000
- In addition, the Shasta-Trinity National Forest:
 - Sold over 19,000 cords of firewood , worth over \$32,108
 - Sold 5,967 Christmas trees, worth over \$84,000

SOURCES

²⁰June 2016 R5 Inventory of FERC Licensed Hydropower projects

²¹PTSAR Reports: <https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml>

²²Cut/Sold reports: <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml>

²³R5 analysis based on cut-sold report and McIver et al., 2015 - https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf