National Forests In CALIFORNIA

Nature's Benefits

Shasta-Trinity National Forest

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 Forest[1]
  - 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 years[2], or
- Enough water for over 14.1 million households for a year[3]

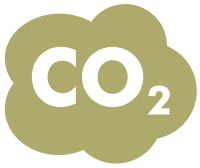
How much is 1.8 trillion gallons worth?

- Estimated wholesale market value: over $540 million[4]
- Cost to Los Angeles households: over $61.4 billion[5]

SOURCES

[1] Brown 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
[2] Per the National Health and Nutrition Examination Surveys, the average American consumes ~299 gallons/year of water, through both drink and food
[3] Assuming 362 gallons/day - http://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf
[4] Using CA water market prices, appropriated by sector - https://www.fs.fed.us/rm/value/docs/marginal_economic_value_streamflow_forests.pdf
[5] 100 gallons/day + monthly water bill of ~$100.14 - http://www.circleofblue.org/waterpricing/

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 (CO_2) 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 240 Million Metric Tons (MMT) of Carbon in its forest[6]
- Sequesters on average .74 MMTC annually; this equates to enough to drive around the earth 266,152 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 businesses[8]
  - Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.
- About 2,420 jobs annually[9]

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 1 million people visit the Shasta-Trinity National Forest to recreate annually, which represents an economic value of over $81 million to those visitors[10]
- Visitors to the Shasta-Trinity National Forest spend about $45 million during their trips[11]
  - As an example, 5,000 visitors annually climb the 14,179 foot iconic Mt. Shasta by purchasing Special Use Permits, totaling $160,000[12]
- Visitors to the Shasta-Trinity National Forest contribute more than $15 million towards wages and income of local businesses[13]

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
[10] R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - https://www.fs.usda.gov/treesearch/pubs/54602
[11] R5 Calculations based on GTR-961 – White, 2017- https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf
[12] Data Records, USFS Point of System
[13] https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml

Nature's Benefits

Shasta-Trinity National Forest (Continued)

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 165,000 people visit the Shasta-Trinity National Forest annually to hike and walk as their main activity, which represents an economic value of over $14 million to those visitors.[15]
- Over 138,000 people visit the Shasta-Trinity National Forest annually to pursue motorized water activities as their main activity, which represents an economic value of over $9 million to those visitors.[16]
- Over 127,000 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 1,000 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 $63,000 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, marbled murrelet, northern spotted owl, California red-legged frog, coho salmon.[19]
- Over 2,500 species of flowering trees, shrubs and wild flowers provide food for pollinators, many of which also pollinate food crops.

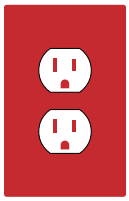
SOURCES

[14] Enterprise Data Warehouse
[15, 16, 17, 18] R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - https://www.fs.usda.gov/treesearch/pubs/54602
[19] Master R5 TE Species List 20170203; https://ecos.fws.gov/ipac/

Nature's Benefits

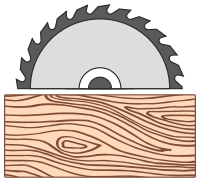
Shasta-Trinity National Forest (Continued)

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 households[20]

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 2016 & 2017, the Shasta-Trinity National Forest:

- Sold about 19,000 thousand board feet (MBF) of Timber,[21] and
- Cut approximately 30,000 MBF of Timber, annually[22]

This cut timber has an estimated value of over $10.4 million[23] and:

- Produced about 15,000 MBF of lumber, and is
  - Worth about $6 million
- Produced over 37,000 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 2,700 tons of landscaping material, and is
  - Worth over $27,000
- In addition, the Shasta-Trinity National Forest:
  - Sold about 19,000 cords of firewood , worth over $51,000
  - Sold 8,400 Christmas trees, worth over $84,000

SOURCES

[20] June 2016 R5 Inventory of FERC Licensed Hydropower projects
[21] PTSAR Reports: https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml
[22] Cut/Sold reports: https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml
[23] R5 analysis based on cut-sold report and McIver et al., 2015 - https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf