



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 Plumas 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 2.6 million acre-feet of water per year come from the Plumas National Forest¹
 - Or over 849 billion gallons per year

That equates to:

- Over 1.2 million Olympic-size swimming pools
- Enough drinking water for California's population for more than 72 years², or
- Enough water for over 6.4 million households for a year³

How much is 849 billion gallons worth?

- Estimated wholesale market value: over \$246 million⁴
- Cost to Los Angeles households: over \$27.9 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/>

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 Plumas National Forest stores about 132.15 Million Metric Tons (MMT) of Carbon in its forest⁶
- Sequesters on average 0.21 MMTC annually; this equates to enough to drive around the earth 77,365 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 Plumas National Forest supports:

- About \$80.5 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 1,670 jobs annually⁹

Recreation: The Plumas 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 357,000 people visit the Plumas National Forest to recreate annually, which represents an economic value of over \$28 million to those visitors¹⁰
- Visitors to the Plumas National Forest spend about \$19 million during their trips¹¹
- Visitors to the Plumas National Forest contribute more than \$7.8 million towards wages and income of local businesses¹²

The Plumas 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

- 414 lakes and ponds
- 5,811 miles of rivers and streams
- 959 miles of trails
- 23,777 acres of wilderness

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/treesearch/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



Nature's Benefits

Plumas National Forest

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- 115 miles of Wild and Scenic Rivers
- 53 developed campgrounds
- 8 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 65,000 people visit the Plumas National Forest annually to camp and backpack as their main activity, which represents an economic value of over \$5.3 million to those visitors.¹⁴
- Over 57,000 people visit the Plumas National Forest annually to fish and hunt as their main activity, which represents an economic value of over \$5 million to those visitors.¹⁵
- Over 59,000 visit the Plumas National Forest annually to view wildlife and natural features as their main activity, which represent an economic value over \$3.7 million to those visitors.¹⁶

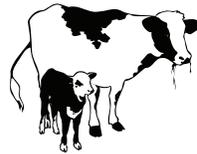
Habitat: Forest Habitats and Biodiversity are key to ecological function; a forest's daily function in turn allows all of Nature's Benefits, from water to recreation, to continue to be provided for humans to enjoy.



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

- 6 Threatened and Endangered Species that include: California red-legged frog, Sierra Nevada yellow-legged frog, gray wolf, Quino checkerspot butterfly, Valley elderberry longhorn beetle.¹⁷
- 636 meadows¹⁸

Grazing: The National Forest Range Program provides for livestock forage, and contributes to the economic and social well-being of people, and promotes stability for communities that depend on range resources for their livelihood.



- There are 42 active grazing allotments on the Plumas National Forest with 24 local ranch families running 7,500 cattle pair and 1,000 sheep.¹⁹

SOURCES

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

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

¹⁸UC 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/>

¹⁹FS-2200-10 range permits which span a time period of 10 years or from the allotment NEPA.

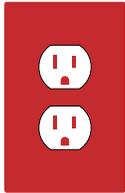


Nature's Benefits

Plumas National Forest

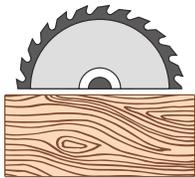
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Energy: The Plumas National Forest energy infrastructure provides power generation for public benefit and includes



- Installed hydro plant capacity of approximately 1,831 megawatts, which could meet the power needs of more than 1,300,000 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 & 2019, the Plumas National Forest:

- Sold about 33,240 thousand board feet (MBF) of Timber, and²¹

- Cut approximately 27,458 (MBF) of Timber, annually²²

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

- Produced about 17,560 MBF of lumber, and is
 - Worth over \$6.8M
- Produced over 32,691 bone dry tons of wood for biomass energy, or
 - Enough to power over 4,670 homes for the year, and is
 - Worth over \$3.6 million
- Produced over 3,100 tons of landscaping material, and is
 - Worth over \$31,110
- In addition, the Plumas National Forest:
 - Sold about 8,580 cords of firewood, worth over \$34,333
 - Sold 8,795 Christmas trees, worth over \$61,000

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 Mclver et al., 2015 - https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf