



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 and filtration; 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; pollination; and flood control.

Do You Know Which Nature's Benefits Come from the Angeles 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 384,000 acre-feet of water per year come from the Angeles National Forest¹
 - Or over 125 billion gallons per year

That equates to:

- Over 180,000 Olympic-size swimming pools
- Enough drinking water for California's population for more than 10 years², or
- Enough water for over 940,000 households for a year³

How much is 125 billion gallons worth?

- Estimated wholesale market value: over \$36 million⁴
- To Los Angeles households: over \$4.122 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-sup-ply-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 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/>



Nature's Benefits

Angeles National Forest

(Continued)

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 Angeles National Forest stores about 9.4 Million Metric Tons (MMT) of forest Carbon⁶
- Shrublands on the Angeles National Forest, like chaparral, store about an additional 2.2 MMT of carbon⁷
- Also the Forest sequesters on average -0.03 MMTC annually.

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,⁸ a critical component of the rural economy of the state.



The Angeles National Forest supports:

- About \$114 million annually in labor income for wage earners and local businesses⁹

- Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.
- About 1,920 jobs annually¹⁰

Recreation: The largest source of jobs supported by the Angeles National Forest are Forest Service-led jobs which provide important contribution to local economies and enhance social connections and community cohesion.



- Over 2.8 million people visit the Angeles National Forest to recreate annually, which represents an economic value of over \$232 million to them¹¹
 - Visitors to the Angeles National Forest spend about \$61 million during their trips¹²
 - Visitors to the Angeles National Forest contribute more than \$29.7 million towards wages and income of local businesses¹³
- The Angeles National Forest landscape includes diverse recreation opportunities such as water recreation (fishing, swimming, and rafting) as well as camping, picnicking, and green open space for activities that support human wellness and cultural traditions.¹⁴

SOURCES

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

⁷R5 Analysis–Molinari Method

^{8, 9, 10}Job and Income Contributions for 2014-At A Glance-Region, <https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml> ¹¹NVUM, R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

¹²R5 Calculations based on GTR-961 – White, 2017- https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf

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

¹⁴Enterprise Data Warehouse



Nature's Benefits

Angeles National Forest

(Continued)

- 126 lakes and ponds
- 508 Miles of rivers and streams
- 541 Miles of Trails
- 121,482 acres of wilderness
- 6 miles of Wild and Scenic Rivers
- 49 developed campgrounds
- 39 developed picnic areas
- Over 1.6 million people visit the Angeles National Forest annually to hike and walk as their main activity, which represents an economic value of over \$137 million to those visitors.¹⁵
- About 270,000 people visit the Angeles National Forest annually to downhill ski as their main activity, which represents an economic value of over \$22 million to those visitors.¹⁶
- Over 116,000 people visit the Angeles National Forest annually to camp and backpack as their main activity, which represents an economic value of over \$9 million to those visitors.¹⁷

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



- 15 Threatened and Endangered Species that include: Santa Ana sucker, California

unarmored 3-spine stickleback, California red-legged frog, mountain yellow-legged frog, Nevin's barberry.¹⁸

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



- Installed hydro plant capacity of approximately 1,637 megawatts, which could meet the power needs of more than 1.2 million households¹⁹
- Estimated annual solar electricity output is 37,980 kilowatt hours, enabling greater use of federal taxpayer funds to go towards forest restoration²⁰

DID YOU KNOW?

The San Gabriel Mountains National Monument, part of the Angeles National Forest, has a strong scientific history. The Mount Wilson Observatory is an internationally renowned astronomical research facility, used by notable scientists such as Edwin Hubble and Albert Einstein.

SOURCES

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

¹⁸Master R5 TE Species List 20191016; <https://ecos.fws.gov/ipac/>

¹⁹June 2016 R5 Inventory of FERC Licensed Hydropower projects

²⁰2015 Forest Service Energy & Sustainability Reporting; Southern California ESPC ENABLE Project Final Proposal; Federal Aggregated Solar Procurement Project