



## 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 Eldorado 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 1.6 million acre-feet of water per year come from the Eldorado National Forest<sup>1</sup>
  - Or over 527 billion gallons per year

*That equates to:*

- Over 790,000 Olympic-size swimming pools
- Enough drinking water for California's population for more than 45 years<sup>2</sup>, or
- Enough water for almost 4 million households for a year<sup>3</sup>

*How much is 527 billion gallons worth?*

- Estimated wholesale water market value: over \$152 million<sup>4</sup>
- Cost to Los Angeles households: over \$17.3 billion<sup>5</sup>

#### SOURCES

<sup>1</sup>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>

<sup>2</sup>Per the National Health and Nutrition Examination Surveys, the average American consumes ~299 gallons/year of water, through both drink and food

<sup>3</sup>Assuming 362 gallons/day - <http://www.irwd.com/images/pdf/save-water/CASingleFamilyWaterUseEfficiencyStudyJune2011.pdf>

<sup>4</sup>Using CA water market prices, appropriated by sector - [https://www.fs.fed.us/rm/value/docs/marginal\\_economic\\_value\\_streamflow\\_forests.pdf](https://www.fs.fed.us/rm/value/docs/marginal_economic_value_streamflow_forests.pdf)

<sup>5</sup>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<sub>2</sub>) from, the atmosphere, which helps reduce the impacts of a warming climate to human, plant and animal habitats.



- The Eldorado National Forest stores about 46.9 Million Metric Tons (MMT) of Carbon in its forests<sup>6</sup>

*That equates to:*

- Over 171.9 MMT of CO<sub>2</sub> equivalent, or
- Equivalent emissions of driving around the Earth more than 16.9 million times

**Local Economies:** The economy of California is fifth largest in the world, and California's National Forests contribute almost \$2 billion annually in wages and income to small businesses,<sup>7</sup> a critical component of the rural economy of the state.



*The Eldorado National Forest supports:*

- About \$116.3 million annually in labor income for wage earners and local businesses<sup>8</sup>
  - Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.

- About 2,250 jobs annually<sup>9</sup>

**Recreation:** The Eldorado 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 898,000 people visit the Eldorado National Forest to recreate annually, which represents an economic value of over \$75 million to those visitors<sup>10</sup>
- Visitors to the Eldorado National Forest spend about \$60 million during their trips<sup>11</sup>
- Visitors to the Eldorado National Forest contribute more than \$18.5 million towards wages and income of local small businesses<sup>12</sup>

The Eldorado 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.<sup>13</sup>

#### SOURCES

<sup>6</sup>10 year average, 2004-13 - <https://www.fs.fed.us/climatechange/documents/PacificSouthwestRegionCarbonAssessment.pdf>

<sup>7, 8, 9</sup>Job and Income Contributions for 2014-At A Glance-Region, <https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml>

<sup>10</sup>R5 Calculations based on GTR-957 - Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

<sup>11</sup>R5 Calculations based on GTR-961 - White, 2017- [https://www.fs.fed.us/pnw/pubs/pnw\\_gtr961.pdf](https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf)

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

<sup>13</sup>Enterprise Data Warehouse



# Nature's Benefits

Eldorado National Forest

(Continued)

- 903 lakes and ponds
- 2,260 miles of rivers and streams
- 1,369 miles of trails
- 103,463 acres of wilderness
- 40 developed campgrounds
- 14 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 76,000 people visit the Eldorado National Forest annually to camp or backpack as their main activity, which represents an economic value of over \$6.7 million to those visitors.<sup>14</sup>
- Over 379,000 people visit the Eldorado National Forest annually to engage in snow sports as their main activity, which represents an economic value of over \$31 million to those visitors.<sup>15</sup>
- Over 149,000 people visit the Eldorado National Forest annually to walk and hike as their main activity, which represents an economic value of over \$12.7 million to those visitors.<sup>16</sup>
- Over 57,000 people visit the Eldorado National Forest annually to hunt and fish as their main activity, which represents an economic value of over \$5 million to those visitors.<sup>17</sup>

**Habitat:** The Eldorado National Forest hosts a multitude of key habitats for animals and plants.



- 4 Threatened and Endangered Species can be found on the Eldorado

National Forest that include: California red-legged frog, Sierra Nevada yellow-legged frog, Yosemite toad, Layne's butterweed.<sup>18</sup>

- 1,407 meadows<sup>19</sup>

**Reforestation/Seeds:** The Placerville

Nursery and Seed Bank grows an average of over 4 million seedlings for reforestation on public and private lands.



- It contains approximately \$15 million of seed for future reforestation needs.

**Energy:** 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 Eldorado National Forest energy infrastructure provides power generation for public benefit and includes:

## SOURCES

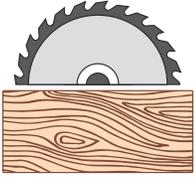
<sup>14, 15, 16, 17</sup>R5 Calculations based on GTR-957 - Rosenburger et al., 2017 - <https://www.fs.usda.gov/treearch/pubs/54602>

<sup>18</sup>Master R5 TE Species List 20170203; <https://ecos.fws.gov/ipac/>

<sup>19</sup>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/>

- Installed hydro plant capacity of approximately 1,101 megawatt, which could meet the power needs of more than 826,500 households<sup>20</sup>

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



In Fiscal Year 2017, the Eldorado National Forest:

- Sold about 43,267 thousand board feet (MBF) of Timber,<sup>21</sup> and
- Cut approximately 50,779 MBF of Timber<sup>22</sup>

This cut timber has an estimated value of over \$21 million,<sup>23</sup> and:

- Produced about 39,700 MBF of lumber, and is
  - Worth about \$15.6 million
- Produced over 50,000 bone dry tons of wood for biomass energy, or
  - Enough to power over 7,000 homes for the year, and is
  - Worth over \$5.6 million
- Produced over 7,000 tons of landscaping material, and is
  - Worth over \$70,000
- In addition, the Eldorado National Forest:
  - Sold about 6,100 cords of firewood, worth over \$25,000
  - Sold 2,513 Christmas trees, worth over \$22,000

#### SOURCES

<sup>20</sup>June 2016 R5 Inventory of FERC Licensed Hydropower projects

<sup>21</sup>2017 PTSAR Reports: <https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml>

<sup>22</sup>2017 Cut/Sold reports: <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml>

<sup>23</sup>R5 analysis based on cut-sold report and McIver et al., 2015 - [https://www.fs.fed.us/pnw/pubs/pnw\\_gtr908.pdf](https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf)