Ecosystem Services of the Pacific Coastal Temperate Rainforest of North America

Ecosystem Services
The Pacific coastal temperate rainforest of North America provides a wide range of goods and services that are vital to human health and livelihood. Collectively, these services can be grouped into four categories: provisioning, regulating, supporting, and cultural services.¹

Provisioning Services
Food, forest products, and fresh water are examples of provisioning services. In comparison to other ecosystem services, provisioning services are more typically included in market transactions and therefore more prevalent in decision making.
- Food Products: Salmon species (chinook, chum, coho, pink, and sockeye), trout species (cutthroat, lake, and steelhead/rainbow), Pacific halibut, deer, and agricultural products
- Forest Products: Lumber, firewood, and fuel wood from species including western hemlock, Sitka spruce, western red cedar, coast Douglas fir, and coastal redwoods; mushrooms, berries, roots, resins, and natural medicines
- Fresh Water: The storage and retention of fresh water sustains watershed stability and resilience and enables power generation

Regulating Services
Climate, water flows, and plant reproduction are examples of regulating services that provide benefits to natural processes.²
- Climate: Regulation of temperature, air quality, and absorption of greenhouse gases and pollutants
- Water Flows: Vegetation reduces flood impacts and retains soil and nutrients
- Plant Reproduction: Pollination requires a healthy population of pollinators (i.e. bats, birds, butterflies, and insects); 70% of crops and 90% of wild plants that require pollination are reliant on a diverse population of pollinators throughout the ecosystem³

Figure 1: The top ten carbon storing national forests highlighting their location in Washington, Oregon, and Southeast Alaska

¹ Coastal Temperate Rainforests
² Ctrf
³ Ctrf
Supporting Services

Soil formation, nutrient cycling, and primary production are examples of supporting services that help maintain and support all other ecosystem services.

- Soil Formation: Soil in the Pacific coastal temperate rainforest of North America provides habitat and nutrients for many species
- Nutrient Dispersal and Cycling: The Pacific coastal temperate rainforest of North America stores, recycles, and processes nutrients from outside sources
- Primary Production: The Pacific coastal temperate rainforest of North America fosters a hugely disproportionate share of the world’s biological production. It accumulates and stores more organic matter than any other forest type (including tropical rain forests) - as much as 450,000 to 1.8 million pounds of wood, foliage, leaf litter, moss, other living plants, and organic soil per acre.4

Cultural Services

The Pacific coastal temperate rainforest of North America offers many cultural services that include, but are not limited to:

- Scientific Discovery: Diverse landscapes and ecosystem structures offer immense academic, business, and community value; including medicines, renewable energy, and traditional ecological knowledge
- Spiritual Enrichment: Communities and individuals are enriched by the Pacific coastal temperate rainforest of North America; this in turn has influenced the locations of communities, businesses, homes, and recreation areas

Recreation: Hiking, skiing, kayaking, fishing, hunting, cruise ships, and ecotourism contribute significant value to local economies and well-being throughout the Pacific coastal temperate rainforest of North America