Economic Impacts of Ecological Restoration in California's North Coast Redwoods

Research Analysis

This research analysis examines how large-scale ecological restoration can advance climate resilience while generating meaningful economic opportunity. Using California's *Redwoods Rising* initiative as a central case study, it highlights how the coordinated research efforts across the BMO Climate Institute, California State Parks, Parks California and the Ecological Workforce Initiative demonstrate the potential for conservation investments to simultaneously heal landscapes and create sustained, high-quality jobs in rural California counties.

Redwoods Rising Background

Redwoods Rising is a restoration initiative located on the North Coast of California, in the ancestral lands of three Northwest California Indigenous tribes – the Chilula, Yurok and Tolowa Peoples. Including UNESCO World Heritage Site-designated lands, this initiative is restoring 70,000 acres of forested lands in the public trust, which provide clean air, healthy fisheries and unparalleled recreational opportunities.

By restoring salmon-bearing streams, addressing failing legacy logging infrastructure and restoring forest health, Redwoods Rising is accelerating the development of old-growth forest characteristics. Restoration thinning in previously clear-cut stands – where today, immature and densely crowded trees compete for water and nutrients – allows young redwoods to grow into the giants of the future. This work also helps bring needed sunlight to the forest floor, supporting the growth of diverse understory plants that in turn support wildlife, creating a healthier forest. Studies show this thinning process encourages redwood trees to sequester carbon more quickly, storing more in their fast-growing and fire-resistant heartwood. Redwoods Rising along with other regional and local large-scale habitat restoration projects will span decades, hopefully rehabilitating tens of thousands of acres and constructing critical nature-based solutions to address climate threats and biodiversity loss.

Goals and Key Learnings

The BMO Climate Institute has developed this economic analysis in collaboration with California State Parks, the Ecological Workforce Initiative and Parks California, a public-private nonprofit partner to California State Parks working alongside public lands agencies, tribal, community and nonprofit organizations to design solutions that make public lands more inclusive, climate-resilient and sustainable. BMO provides grant funding to Parks California to support programs that expand access to California's state parks, create career pathways for future environmental leaders and strengthen partnerships with tribal communities across the state.

Based on this research, when the projects are aggregated, it becomes clear that **ecological restoration is a significant economic driver throughout the North Coast**, providing financial opportunity for workers and socioeconomic benefits for communities at large. This is in line with Parks California's goals to increase visibility, awareness and preparedness for future careers in this sector.

This paper expands on an earlier analysis developed by the Redwoods Rising partners – California State Parks, the National Parks Service and Save the Redwoods League – and funded by the Redwood Parks Conservancy, *Assessing the Restoration Economy within Redwood National and State Parks*, which analyzed completed restoration projects on public and privately held lands.

This new analysis prioritizes a different lens to understand projections of the labor force impact of planned ecological restoration work in Del Norte and Humboldt counties to the year 2030. This analysis is forward-focused: It looks at restoration projects that will be constructed in the region over the next five years, quantifies the trade work positions that will be created and analyzes the broader economic impact of those worker wages.

The BMO Climate Institute has calculated that when measured in terms of economic output, the impact is hundreds of millions of dollars infused into the local economies. In this context, economic output includes the total monetary value of goods and services produced by the restoration economy.[1]

- Over the five-year study period for both counties, the economic output is $235,959,877 (annualized: $47,191,975 per year). This annual economic output figure comprises sales and revenue, as well as the value of any intermediate goods and services and "value added" from the restoration economy.
- Value added in this context represents the increase in value the restoration economy creates, which is comprised of labor income (wages and salaries), property income (profits) and taxes on production, net of subsidies. The value-added figure is $106,618,907 for both counties for the five-year period (annualized: $21,323,781 per year).

1 It is important to note that the quantified impact reflects only a partial dataset of the overall project universe; therefore, the calculations presented are conservative estimates.

The impact of these ecological restoration projects is important also because these are skilled, trade-work jobs that do not require a college degree and would provide above the per capita income for both counties[1] with wages ranging from $42,000 to $108,000 per year, per season[2]. In terms of total revenue for these two counties annually, it is a growth of $87,392,545 over five years (annualized $17,478,509) in direct wages for Del Norte and Humboldt counties).[3]

The direct wages for Del Norte and Humboldt counties do not account for indirect impacts, like fuel and maintenance purchases by trucking firms, or spending by contractors on construction supplies, etc., which could account for another $410,485,605 over five years (annualized: $82,097,121) for both counties.[4]

These impacts represent the multiplier effect within the supply chain, as the suppliers of the directly affected business also increase their output, purchase inputs and employ labor to meet this new, higher demand from the initial project or change in demand.

Induced impacts are defined as the subsequent wave of economic activity that occurs when workers in the directly affected industry and its suppliers spend their earned wages in the broader economy. In the case of ecological restoration projects, this might be considered as monies spent on food, lodging and other expenses incurred by contractors and staff, amounting to $200,169,888 (annualized: $40,033,977).

For rural counties like Del Norte and Humboldt, which rank among the poorest in terms of the 2023 median household income analysis, these are significant capital influxes.

In summary, these projects amount to $698,048,042 in Total Economic Effect between 2026 and 2030. *See tables on page 7.*

Ecological restoration projects can make these counties more attractive for investment in complementary sectors like sustainable timber, certified agricultural products and ecotourism experiences, further boosting the local economy and generating more tax revenue, which can lead to more regional funding and development opportunities. When local workers participate in the jobs implementing local projects, ecological restoration and nature-based infrastructure bring the health of the local economy in alignment with the health of the environment.

1 Del Norte per capita income in the past 12 months in 2023 dollars, 2019-2023: $31,008 (U.S. Census Bureau Quick-Facts: Del Norte County, California). Humboldt per capita income in the past 12 months in 2023 dollars 2019-2023: $36,082 (U.S. Census Bureau QuickFacts: Humboldt County, California).

2 We are assuming that most workers will work seasonally nine months of the year, or around 1,200 hours. Some workers may decide to join other projects, and their earnings potential are even greater than our conservative estimations.

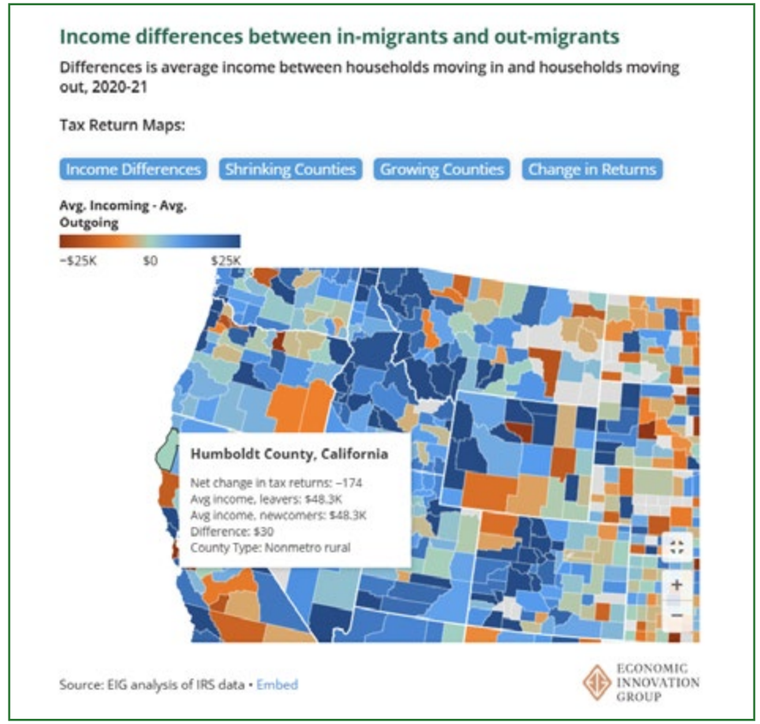
3 The direct impact in this paper is different from the one in *Assessing the Restoration Economy within Redwood National and State Parks*, given that we had access to detail data about construction projects and not just payroll for administrative staff, contracts with construction and trucking and field tour visitor spending.

4 Indirect impacts findings are based on Input-Output Analysis, which is an economic modeling technique that describes the interdependence of industries within an economy by quantifying the monetary flow of goods and services between sectors and to final demand.

As of August 2025, unemployment remains elevated in these counties compared to the state average: Del Norte County: 6.5%, Humboldt County: 5.8%, versus California statewide: 5.5%.

These figures underscore the importance of creating local job opportunities, as unemployment and underemployment remain higher in rural counties than the state average and align with observed patterns of residents leaving the region for work.

The impact of the job opportunities created by ecological restoration work, especially since it will span decades, cannot be overstated since a significant percentage of the population typically leaves the region to find jobs in more urban regions of California or other states. This is especially true for Humboldt County, which has been experiencing negative net change migration, as reflected by negative growth in tax returns, due to people leaving the county to find jobs.



Analytic Approach

For this project, the BMO Climate Institute concentrated on the trade-work labor impacts on two counties, Del Norte County and Humboldt County in Northern California. This analysis considers projects from the North Coast Redwoods District of California State Parks, California Trout and Humboldt County Resource Conservation District as an initial dataset of restoration and stewardship project impact. The project data was collected by the Ecological Workforce Initiative. The analysis provides direct labor impacts for Del Norte and Humboldt counties by project type. The direct impact of projects falls into the standard North American Industry Classification System (NAICS) within 2 activities: Forestry and Logging (113) and Heavy and Civil Engineering Construction (237). NAICS is the standard used by Federal statistical agencies to classify business establishments for economic data analysis. These two NAICS activities were selected given their closest relevance to the projects being analyzed. However, it is worth noting that typical restoration and stewardship activities do not currently have dedicated NAICS activities.

(1) Forestry and Logging (NAICS 113) by definition includes all forest thinning activities, traditionally capturing extractive work. For the purposes of this analysis, activities counted assumes variable density thinning related only to forest health and fuel reduction activities that promote ecological benefits, such as the acceleration of old-growth forest characteristics and reduced wildfire risk.

(2) Heavy and Civil Engineering Construction (NAICS 237) has traditionally accounted for construction of highways, streets, roads and bridges, as well as other heavy and civil engineering projects. For our analysis, we isolated projects where the purpose was a net ecological uplift. This includes bridge and culvert replacement for the purpose of aquatic organism passage and sediment abatement, seasonal and tidal marsh wetland restoration, floodplain restoration, dune habitat restoration and failing road infrastructure removal.

Ecological restoration activities related to Heavy Civil Construction (NAICS 237) are typically the most labor and equipment intensive, and therefore where the largest financial investment occurs. The average number of jobs for both counties related to heavy and civil engineering in our subcategory of ecological restoration is 215 jobs per year with an average per year wage of $81,295.

The analysis is based on an initial, non-comprehensive but representative dataset of projects across Humboldt and Del Norte counties, and ranges from outer coastal tidal marsh restoration to upland forest health projects. These projects include work as construction laborers, equipment operators, fallers, heavy truck drivers, etc. Jobs like these do not require college degrees or extended education and are often direct-to-work opportunities wherein employees are paid as they learn on the job, creating accessible low-barrier-to-entry positions.

Del Norte County and Humboldt County - Trade Labor Direct Impacts - Annual

NAICS	Category	Jobs (avg # hired/yr)	Earnings/yr ($)
Forestry and Logging (113)	Forest Health	81	$3,782,200
Heavy and civil engineering construction (237)	Aquatic Habitat Floodplain Restoration Dune Restoration Estuary Restoration	60 37 1 36	$6,039,386 $ 3,688,400 $70,000 $3,898,523
	Subtotal NAICS 237	134	$13,696,309
All NAICS		**215**	**$ 17,478,509**

Del Norte County and Humboldt County - Trade Labor Direct Impacts - 2026-2030

NAICS	Category	# of Positions 2026-2030	Earnings 2026-2030 ($)
Forestry and Logging (113)	Forest Health	403	$18,911,000
Heavy and civil engineering construction (237)	Aquatic Habitat Floodplain Restoration Dune Restoration Estuary Restoration	302 184 4 180	$30,196,932 $18,442,000 $350,000 $19,492,615
	Subtotal NAICS 237	670	$68,481,547
All NAICS		**1073**	**$87,392,547**

Results and Conclusion

Ecological restoration activities generate a significant net economic return by creating more climate resilient communities and by supporting other related industries, such as ecotourism. These additional benefits stimulate local economies via a multiplier effect, since every dollar spent on restoration creates more local economic activities, like patronage of restaurants, equipment companies, hotels, etc., resulting in higher indirect and induced impact than simply the direct economic benefits created.

Beyond economic impact, ecological restoration projects support increased carbon sequestration, lower healthcare costs from cleaner air and water, improved mental and physical health outcomes through access to nature and increased property values from enhanced climate resilience.[1]

Redwoods Rising and other ecological restoration or nature-based solutions projects planned and underway throughout the North Coast region are a combined significant economic driver and a substantial sector of the local economy. Demonstrating a potential to create more socioeconomic opportunity, these projects can offer economic and workforce stability in the region with appropriate investment. The projects create accessible, high-wage jobs which local workforce members should be supported in pursuing, thus assuring that local environmental restoration results in local economic uplift.

At a time of socioeconomic change with new technologies, global and national economic shifts and rising costs of living contributing to increased precarity for workers, the restoration economy represents an expanding opportunity to bring purpose and prosperity to rural communities, helping nature and humans thrive.

Beyond Initial Restoration: Sustained Economic Impact

Restoration projects generate benefits that extend well beyond construction phases:

- **Maintenance and stewardship roles**: Restored lands require long-term care, creating seasonal and permanent jobs.
- **New economic streams**: Ecotourism, carbon credit markets and ecosystem services can sustain revenue beyond initial restoration.
- **Community investment**: Increased property values and tax revenue can fund local infrastructure and services.
- **Workforce transition**: Workers can upskill and move into related fields like conservation, forestry and climate resilience projects statewide.

In conclusion, the analysis underscores the transformative potential of ecological restoration as an especially powerful economic engine for rural communities. The data from Del Norte and Humboldt counties demonstrates that restoration projects not only generate substantial direct employment and wages but also spark broader economic activity through indirect and induced impacts. These efforts create accessible, well-paying jobs, foster local investment and contribute to long-term community resilience. As this study is based on a limited dataset within a single region, it invites further exploration of the role ecological restoration can offer in driving economic growth across California and the nation. With strategic investment and policy support, restoration can be a cornerstone of sustainable development and climate resilience.

1 *Restoring natural forests is the best way to remove atmospheric carbon* – Nature; *The Economic Benefits of Protecting Healthy Watersheds* – US EPA

Listen to the companion podcast **"Redwoods Rising: Restoring Forests, Rebuilding Communities"** on your favorite podcast platform.

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