



The Case for a More Highly Trained Ecological Restoration Workforce

Growth of Ecological Restoration Funding

As the impacts of climate change become more apparent and as California's natural resources continue to be strained by its growing population, the importance of conservation and restoration efforts is escalating. Ecosystem service projects and mitigation projects for public works infrastructure are increasing in size and complexity as the demand for impactful restoration and resource protection grows. In addition, the need to protect civic infrastructure from climate change has resulted in many traditional public works projects integrating environmental resiliency and contingency measures.

California has demonstrated its commitment to restoring ecological function through a number of large-scale efforts, using a variety of funding mechanisms (bond measures, state and local government contributions, NGO project sponsorship and private donations). Proposition 1 (The Water Quality, Supply, and Infrastructure Improvement Act) passed in 2014 authorized \$7.545 billion in general obligation bonds to fund ecosystems and water supply infrastructure projects, of which \$1.495 billion was specifically directed to watershed protection and restoration. In 2018, Proposition 68 (California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act) passed, authorizing another \$4.1 billion in bond funding for resource conservation, parks and ecosystem restoration work.

These bond measures reflect a growing commitment to ecological restoration and well-being. Public perception of ecosystem services is evolving as economic and scientific data show that restored ecosystems provide economic benefits that often outweigh the benefits of the economy's long-standing resource-extraction model. The perception shift is clearly demonstrated by the voters' willingness to approve the sweeping bond measures mentioned above.

Shortage of Skilled Restoration Workers

Although public support and dedicated funding are positive developments and represent enormous opportunities, several challenges lay ahead for the field of ecological restoration. Chief among these challenges is a shortage in skilled workers. Industry leaders report significant challenges in finding workers with the understanding and skills to work effectively

on ecologically sensitive projects. Ecosystem service projects are primarily constructed within or in close proximity to sensitive resources, including wetlands and streams within resource agencies' jurisdictions, often overlain with critically endangered or threatened species habitat and underlain by precious cultural resources. Without properly trained crews that can work in these environments, construction activities that are intended to 'restore' or 'enhance' the resources can result in environmental degradation, species mortality, and destruction of artifacts instead.

In initial conversations with industry leaders, they report that the extent in which workers are trained in this specialty varies dramatically between contractors, NGO's and government agencies – and is primarily based on on-the-job training, with no set standards across the industry. This represents an enormous strategic opportunity for the ecological restoration industry to elevate itself and position the industry for the future. If industry leaders work with education and workforce development partners to establish training standards and a training model, leading to a standardized curriculum with milestones and an industry-recognized certificate, this could serve to advance the industry on a number of fronts:

- By assisting businesses in accessing more skilled workers to meet the demands of ecological restoration projects,
- By moving more job seekers into these occupations which provide excellent wages and benefits, and
- By more successful restoration projects which benefit the community at large.

Even traditional large civil construction projects have environmentally sensitive aspects to them, and so the need for these skills extends beyond specialty firms. A conservative formula of 10% of the total project cost to design & permitting and 10% to administration, means that 80% of total project cost to go to the contractor, 40% of which goes to the on the ground workforce, resulting in an estimated 32% of total project cost going into labor wages.

According to a Gallup report on How Millennials Want to Work and Live, Millennials want to work for organizations with a mission and purpose. Whereas Baby Boomers worked for a paycheck in order to focus on their families and communities, Millennials are driven by purpose. Their work must have meaning. As more young people identify climate change as the defining issue of their generation, more are seeking careers that will have a positive environmental impact. This comes at a time when a variety of environmental jobs are projected to have above-average growth over the next 10 years, according to the [Bureau of Labor Statistics](#).

Increased Economic Efficiency and Reduction of Regulatory Burden

In an effort to minimize the negative outcomes that can result from untrained personnel working in sensitive habitats, the resource agencies who issue permits for these projects impose stringent regulations and constraints on construction activities such as logistics, work windows

and methods. These constraints increase costs which are not always considered during project conception, budgeting and planning. Furthermore, while the direct interaction with the natural resources is occurring at the trade workers' level, during the procurement process there is no current vetting of their skill sets for working in ecologically sensitive zones nor is there currently any value assigned when planning or evaluating for project success.

Training will provide resource agencies with a reliable metric that they can use to select qualified firms, thereby reducing the need for what will become unnecessary regulations and constraints that are currently intended to avoid the damage caused by under-trained workers. This will lead to lower costs for projects while resulting in better environmental outcomes. The establishment of training benchmarks, leading to a standardized curriculum with milestones and an industry-recognized certificate will result not only in providing jobs with excellent wages and benefits, but will result in more successful restoration project outcomes, benefitting both the community at large and environmental resilience to a changing climate.

Impact on Restoration Industry

The limiting factor for contractors doing restoration work is the availability of trade workers with the requisite training in permitting, endangered species, and working in sensitive environments. This workforce shortage is threatening the long-term viability of the industry at a time when it is on the cusp of exponential growth, with more projects in the pipeline than there are environmentally trained workers to do them.

The potential development of entirely new job classifications will help to elevate these jobs – jobs which do not require college degrees and allow individuals to support their families while doing important work to protect natural resources for future generations. Furthermore, trained ecological restoration construction workers will be a force to promote future projects and ensure laws are passed that further protect and enhance the industry.

The Workforce Alliance and HanfordARC are exploring ways to address these pressing industry issues, including gathering input from other industry leaders, analyzing relevant occupational and economic data, exploring training models and developing strategies to move forward. For more information, or to join the conversation, contact:

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