



C·O·E

CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION

FOREST MANAGEMENT AND PROTECTION

IN THE FAR NORTH

Far North
Center of Excellence

FEBRUARY 2022

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SUMMARY

The Far North Center of Excellence for Labor Market Research prepared this report to provide a labor market analysis of educational supply and occupational demand for middle-skilled career pathways in the Far North subregion. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers.

This report primarily focuses on training that leads to jobs in middle-skilled occupations - jobs that typically require education beyond a high school diploma but less than a Bachelor's degree - but may include higher-skilled occupations for training pathways that lead to a Bachelor's degree. Lowered skilled occupations are rarely considered in this type of analysis due to the lessened barriers for entry-level work, such as no formal education and on-the-job training requirements.

Key findings include:

- The Far North subregion held 2,107 forest management and protection jobs in 2020. Forest management and protection jobs are projected to increase by 1% over the next five years, adding 31 new jobs to the subregion by 2025.
- Over the next five years, forest management and protection jobs are projected to have 261 annual openings in the Far North subregion.
- Wage data shows that forest management and protection occupations earn \$2 to \$30 above the subregion's living wage of \$12.74 per hour.
- Awards data analysis shows that Far North training providers conferred an average of 6 awards (certificates and associate degrees) in forest management and protection programs over the last three academic years. One training provider conferred an average of 40 awards (Bachelor's) in forest management and protection programs over the last three academic years.

Recommendations include:

- The Far North Center of Excellence recommends a transfer pathway program.
- The Far North Center of Excellence also recommends continued collaboration with local industry partners and training providers.

INTRODUCTION

The Far North Center of Excellence (COE) was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following Standard Occupational Classification (SOC) occupations and codes:

- These middle-skill occupations require more education and training beyond a high school diploma but less than a four-year degree:
 - Forest and Conservation Technicians (19-4071)
 - Forest Fire Inspectors and Prevention Specialists (33-2022)
- Students who transfer and earn a four-year degree could pursue the following high-skill occupations:
 - Conservation Scientists (19-1031)
 - Foresters (19-1032)

A review of related programs revealed the following Taxonomy of Programs (TOP) title(s) and code(s) are appropriate for inclusion in this report:

- Forestry (0114.00)
- Wildland Fire Technology (2133.10)

The corresponding Classification of Instructional Program (CIP) title(s) and code(s) are:

- Forestry, General (03.0501)
- Forest Technology/Technician (03.0511)
- Wildland/Forest Firefighting and Investigation (43.0206)

OCCUPATIONAL DEMAND

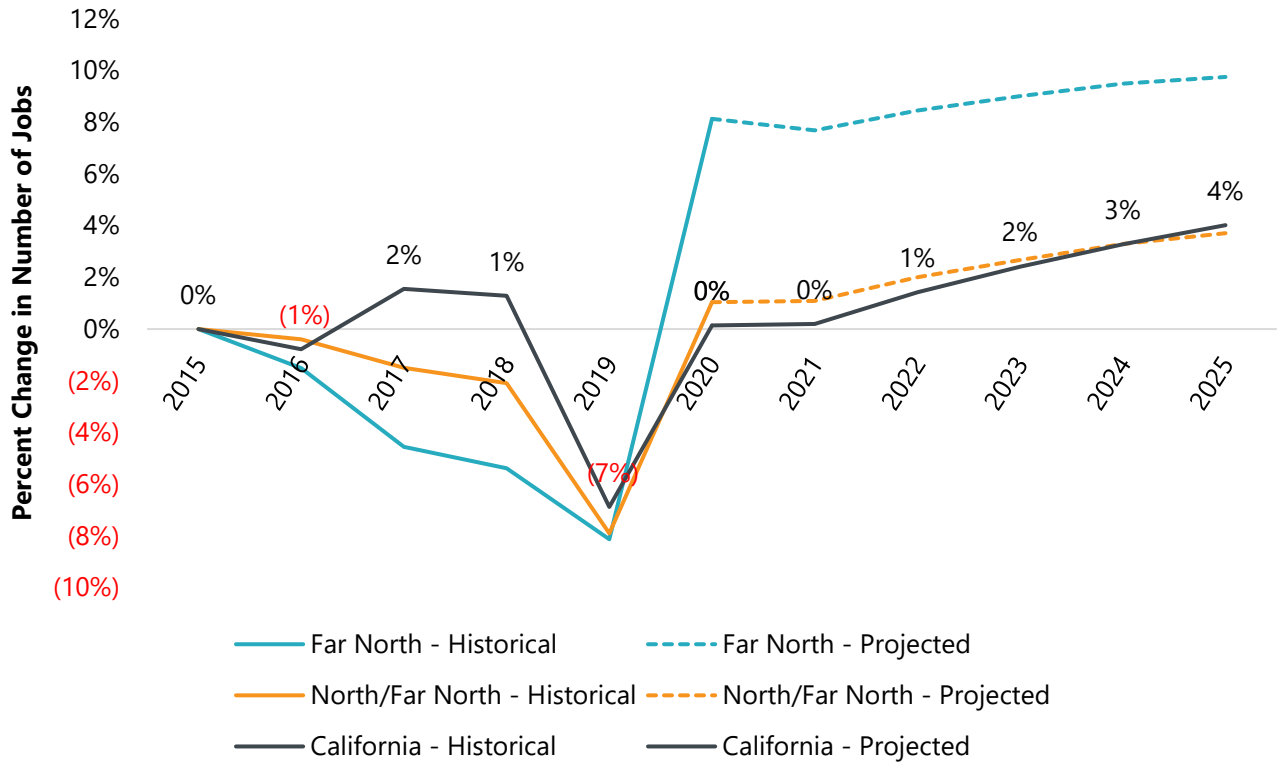
Exhibit 1 summarizes the five-year projected job growth for middle-skill and high-skill occupations in the Far North, North/Far North, and California.

Exhibit 1. Employment and projected demand, 2020-2025

Occupation	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	2020-2025 Annual Openings
Forest and Conservation Technicians	1,724	1,722	(2)	0	217
Forest Fire Inspectors and Prevention Specialists	11	16	5	45%	2
Conservation Scientists	185	200	15	8%	21
Foresters	186	200	14	8%	21
Far North	2,107	2,098	31	1%	261
Forest and Conservation Technicians	2,430	2,446	16	1%	308
Forest Fire Inspectors and Prevention Specialists	60	72	12	20%	9
Conservation Scientists	341	371	30	9%	39
Foresters	264	286	22	8%	29
North/Far North	3,094	3,176	82	3%	385
Forest and Conservation Technicians	6986	7085	99	1%	892
Forest Fire Inspectors and Prevention Specialists	492	558	66	13%	66
Conservation Scientists	1696	1855	159	9%	194
Foresters	1024	1094	70	7%	112
California	10,198	10,593	395	4%	1,264

Exhibit 2 compares the percent change in jobs between 2015 through 2020 and the projected changes through 2025. The rate of change is indexed to the total number of jobs in 2015.

Exhibit 2. Changes in employment, 2015-2025



WAGES

Exhibit 3 compares the entry-level, median, and experienced wages for the selected occupations to the Far North living wage for a single adult - \$12.74 per hour.¹

Exhibit 3. Comparison of wages by occupation, 2020

¹ Living wage is defined as the level of income a single adult with no children must earn to meet basic needs, including food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs. The 25th-percentile and 75th-percentile hourly wages are used as proxy for entry-level and experienced-level wages.



JOB POSTINGS

This section of the report analyzes recent data from online job postings (real-time LMI). Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends.

The Far North COE identified 295 online job postings for the selected occupations in the Far North subregion. Job postings data comes from Burning Glass Labor Insights and represents new listings posted online within the last year, from February 1, 2021, to January 31, 2022.

Occupations and Job Titles

Exhibit 4 details the number of online job postings for the selected occupations.

Exhibit 4. Number of job postings by occupation

Occupation	Job Postings	Share of Job Postings
Forest and Conservation Technicians	142	48%
Forest Fire Inspectors and Prevention Specialists	8	2%
Conservation Scientists	34	12%
Foresters	111	38%
Total Job Postings	295	100%

Exhibit 5 shows the top 10 job titles with the most job postings and the share of job postings. All job postings included a job title.

Exhibit 5. Top jobs titles

Job Title	Job Postings	Share of Job Postings
Consulting Utility Forester	34	13%
Forestry Technician	21	7%
Fire Engine Operator Feo	16	5%
Forester	15	5%
Forestry Technician Recreation	8	3%
Forestry Technician Sale Administration	8	3%
Park Ranger	8	3%
Forester I Nonsupervisory	5	2%
District Ranger	4	1%
Forestry Technician Fire Dispatch	4	1%

Employers

Exhibit 6 shows the top 10 employers with the most job postings for the selected occupations. Nine percent (n = 27) of job postings did not include an employer.

Exhibit 6. Employers with the most job postings

Employer	Job Postings	Share of Job Postings
Forest Service	87	33%
Bureau of Land Management	30	11%
Cn Utility Consulting	22	8%
US Department of Agriculture	19	7%
Mendocino Redwood Company Llc	14	5%
National Park Service	12	5%

Employer	Job Postings	Share of Job Postings
Acrt Incorporated	9	3%
Wright Group	6	2%
Mendocino Forest Products	6	2%
State of California	5	2%

Certifications, Skills, and Experience

Exhibit 7 shows the most relevant certifications requested by employers for the selected occupations. Thirty-six percent (n = 106) of job postings did not include certification information.

Exhibit 7. Most in-demand certifications

Certification	Job Postings	Share of Job Postings
Wildland Firefighter I	18	6%
Real Estate Certification	13	4%
Certified Arborist	5	2%
CDL Class C	3	1%
Hazardous Materials Certification	2	1%
Certified Pest Control	2	1%

Exhibit 8 shows the specialized skills most requested by employers for the selected occupations. Seven percent (n = 20) of job postings did not include skills information

Exhibit 8. Most in-demand specialized skills

Specialized Skill	Skill Postings	Share of Skill Postings
Personnel Management	111	40%
Scheduling	71	26%
Land Management	70	26%

Specialized Skill	Skill Postings	Share of Skill Postings
Range Management	70	26%
Fire Suppression	69	25%
Natural Resources	61	22%
Budgeting	55	20%
Data Collection	54	20%
Global Positioning System (GPS)	43	16%
Natural Resource Management	43	15%

Exhibit 9 shows the minimum level of education required by employers for job postings for the selected occupations. All job postings included a preferred education level.

Exhibit 9. Employer-preferred minimum education levels

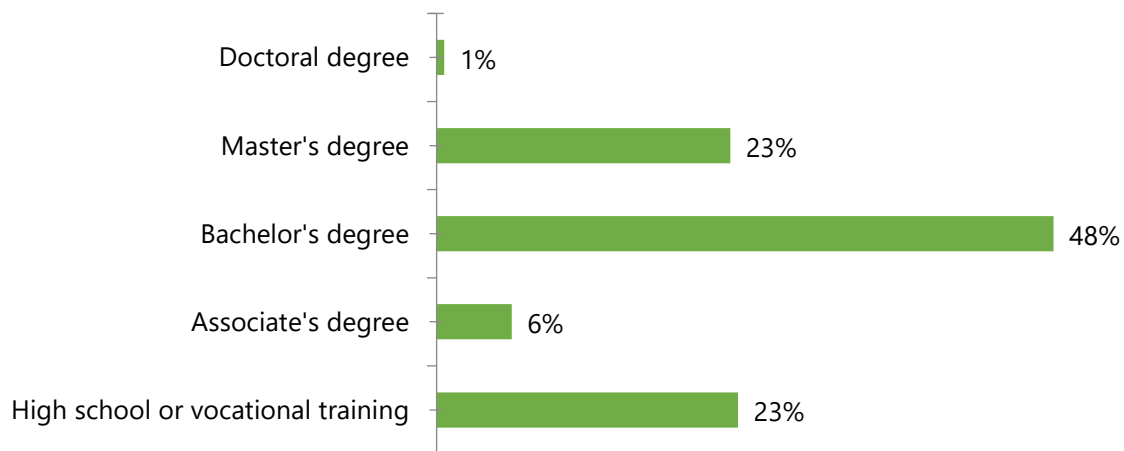
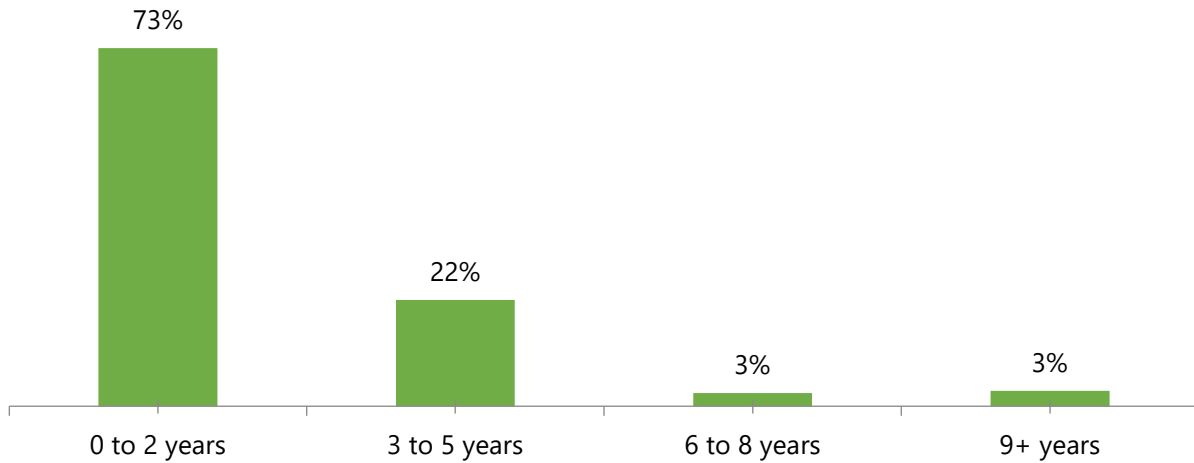


Exhibit 10 shows the experience levels required by employers for job postings for the selected occupations. Twenty-four percent (n = 72) of job postings did not include a preferred experience level.

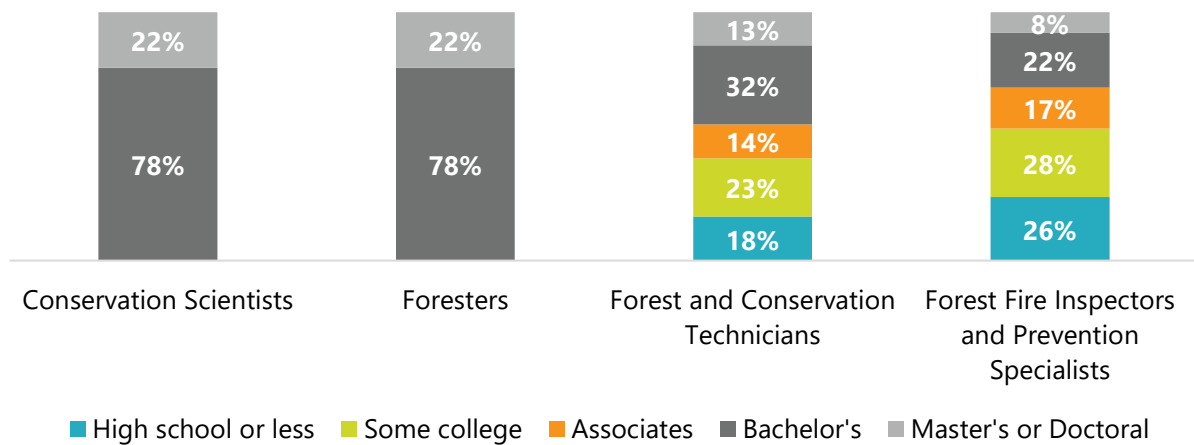
Exhibit 10. Employer-preferred experience levels



EDUCATION AND TRAINING

The U.S. Census Bureau and Bureau of Labor Statistics collects data on education achieved by workers employed in occupations. Exhibit 11 shows the national-level educational attainment of the current workforce in the selected occupations.

Exhibit 11. National worker educational attainment for selected occupations, 2019



The Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which the BLS publishes projections data. Exhibit 12 shows the skill level and entry-level job requirements for the selected occupations.

Exhibit 12. Typical education, work experience, and on-the-job training requirements

Occupation	Typical Entry-level Education	Work Experience Required	On-the-job Training Required
Conservation Scientists	Bachelor's degree	None	None
Foresters	Bachelor's degree	None	None
Forest and Conservation Technicians	Associate's degree	None	None
Forest Fire Inspectors and Prevention Specialists	High school diploma or equivalent	Less than 5 years	Moderate-term

EDUCATIONAL SUPPLY

Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes. Exhibit 13 shows the TOP and CIP codes for educational programs related to the selected occupations.

Exhibit 13. TOP and CIP codes for training programs related to the selected occupations

TOP Programs and Codes	Aligned CIP Programs and Codes
Forestry (0114.00)	Forestry, General (03.0501)
Wildland Fire Technology (2133.10)	Wildland/Forest Firefighting and Investigation (43.0206)

Community College Supply

Exhibit 14 shows the average number of certificates and degrees conferred in selected community college programs over the last three academic years. All but 3 awards conferred in the last three academic years were associate degrees.

Exhibit 14. Annual average community college awards by program, 2017-18 through 2019-20

Program - TOP Code	College	Annual Awards 2017-18	Annual Awards 2018-19	Annual Awards 2019-20	3-Yr Annual Awards Average
Forestry (0114.00)	Redwoods	7	1	4	4
	Shasta	2	0	3	2
	Subtotal	9	1	7	6
Wildland Fire Technology (2133.10)	n/a	0	0	0	0
	Subtotal	0	0	0	0
	Grand Total	9	1	7	6

Other Postsecondary Supply

Exhibit 15 compares the average number of degrees conferred by non-community college training providers in the Far North over the last three academic years. Please note that non-community college data lags by one year.

Exhibit 15. Other postsecondary awards by program, 2016-17 through 2018-19

Program - CIP Code	College	Annual Awards 2016-17	Annual Awards 2017-18	Annual Awards 2018-19	3-Yr Annual Awards Average
Forestry, General (03.0501)	Humboldt State University	38	40	42	40
	Grand Total	38	40	42	40

FINDINGS

- This report focuses on four occupations in the forest management and protection pathway, including Forest and Conservation Technicians, Forest Fire Inspectors and Prevention Specialists, Conservation Scientists, and Foresters.
- The Far North subregion held 2,107 forest management and protection jobs in 2020.
- Far North forest management and protection jobs are projected to increase by 1% over the next five years, adding 31 new jobs to the subregion by 2025. Jobs for forest management and protection are projected to grow at a slightly slower rate in the Far North subregion than in California.
- Over the next five years, forest management and protection jobs are projected to have 261 annual openings in the Far North subregion.
- Wage data shows that forest management and protection occupations earn \$2 to \$30 above the subregion's living wage of \$12.74 per hour.
- According to real-time labor market information, there were 295 online job postings for forest management and protection occupations between February 1, 2021, and January 31, 2022. Many of the top employers for these jobs are federal agencies.
- Between 37% and 45% of incumbent forest and conservation technicians and forest fire inspectors and prevention specialists have educational attainment levels consistent with community college offerings (some college or associate degrees). In 2019, incumbent foresters and conservation scientists held a Bachelor's degree or beyond.
- Two Far North community colleges offer degrees and certificates in programs related to forest management and protection. Together, these programs conferred an average of 6 awards (certificates and associate degrees) in forest management and protection programs over the last three academic years (2017-18 through 2019-20).
- Local non-community college postsecondary training providers also offer training related to the studied occupations. Between 2017-18 and 2019-20, non-community college training providers conferred an average of 40 awards in general forestry programs over the last three years. Please note that non-community college awards data lags by one year.

RECOMMENDATIONS

- Based on a three-year average of annual awards in Far North region forest management and protection pathway programs and projected yearly openings, the supply gap analysis shows that the region seems to have room for additional training.
 - Together, community colleges and other postsecondary training providers issued an average of 46 awards over the last three years.
 - There are 261 projected annual openings for forest management and protection jobs.
- The Far North Center of Excellence recommends a dedicated transfer pathway to students since advanced positions within this career pathway typically require a four-year degree.
- The North/Far North Center of Excellence also recommends continued collaboration with local industry partners and training providers.

COE Recommendation		
Move forward with the program	Proceed with caution	Program is not recommended
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX A. METHODOLOGY AND SOURCES

Occupations in this report were identified using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and O*Net OnLine. This report's findings were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

Cal-PASS Plus LaunchBoard. California Community Colleges Chancellor's Office.

<https://www.calpassplus.org/LaunchBoard/Home.aspx>.

Emsi 2022.1; QCEW Employees, Non-QCEW Employees, and Self-Employed.

<https://www.economicmodeling.com/>. EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors).

Educational Attainment for Workers 25 Years and Older by Detailed Occupation, 2016-2017.

Bureau of Labor Statistics. <https://www.bls.gov/emp/tables/educational-attainment.htm#>.

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"TOP-CIP-SOC Crosswalk." Centers of Excellence for Labor Market Research. November 2015 Edition. <http://coecc.net/>

COVID-19 Statement: This report includes employment projection data by EMSI. EMSI's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

Important Disclaimer: All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

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Workforce Development Program



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