

**Program Endorsement Brief: 0114.00/Forestry
Wildland Resources and Forestry (Associate of Science)**

Los Angeles/Orange County Center of Excellence, April 2021

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met <input checked="" type="checkbox"/>	Endorsed: Some Criteria Met <input type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Emerging Occupation(s)			
Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: *forest and conservation technicians* (19-4071); and *first-line supervisors of farming, fishing, and forestry workers* (45-1011); and one below-middle skill occupation: *forest and conservation workers* (45-4011). Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.¹

This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations. This report also includes supply and demand data for both Riverside and San Bernardino counties. While the labor market information and community college data for these two additional counties is listed in this report, **the program endorsement is based solely upon the supply and demand data for Los Angeles and Orange counties.**

Based on the available data, there appears to be a supply gap for these wildland resources and forestry-related occupations in the region. The occupation with the highest number of annual openings (*forest and conservation technicians*) has more than one-third of workers in the field who have completed some college or an associate degree. Additionally, all three occupations have entry-level wages that exceed the living wage in Los Angeles County. **Therefore, due to all the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **149 jobs available annually** in the LA/OC region due to new job growth and replacements, **which is more than the 37 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – In Los Angeles County, all three wildland resources and forestry-related occupations have entry-level wages above the county's living wage (\$15.04/hour).²
- **Educational Criteria** – Within the LA/OC region, **59% of the annual job openings** for occupations related to wildland resources and forestry *typically require a high school diploma*.
 - National-level educational attainment data indicates between 22% and 37% of workers in the field have completed some college or an associate degree.
 - Between 55% and 90% of workers in the field have completed an associate degree or less.
 - The occupation with the highest number of annual openings (*forest and conservation technicians*) has more than one-third of workers in the field who have completed some college or an associate degree.

Supply:

- There are **three community colleges** in the LA/OC region that issue awards related to forestry or natural resources, conferring an average of **37 awards annually** between 2016 and 2019.
- Between 2014 and 2017, there were no awards conferred in related training programs by non-community college institutions throughout the region.

² Living wage data was pulled from California Family Needs Calculator on 4/28/2021. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/2018-family-needs-calculator/>.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the three wildland resources and forestry-related occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to remain constant through 2024. There will be nearly 150 job openings per year through 2024 due to job growth and replacements.

Occupational demand projections are also provided for Riverside and San Bernardino counties (Exhibit 2). The number of jobs related to these occupations is projected to increase by 3% through 2024, and there will be more than 130 job openings per year through 2024 due to job growth and replacements.

This report includes employment projection data by Emsi, which uses EDD information. 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. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it 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. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Los Angeles	878	878	0	0%	112
Orange	272	276	4	1%	37
Total	1,151	1,154	3	0%	149

Exhibit 2: Occupational demand in Riverside and San Bernardino Counties

Geography	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Riverside	565	581	16	3%	76
San Bernardino	442	453	11	2%	58
Total	1,007	1,033	27	3%	134

Wages

The labor market endorsement in this report considers the entry-level hourly wages for the three wildland resources and forestry occupations in Los Angeles County, as they relate to the county's living wage. Orange County wages are included below in order to provide a complete analysis of the LA/OC region. Wages for Riverside and San Bernardino counties are also included below. Detailed wage information, by county, is included in Appendix A.

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Los Angeles County — All three wildland resources and forestry-related occupations have entry-level wages **above** the living wage for one adult (\$15.04 in Los Angeles County). Typical entry-level hourly wages are in a range between \$15.65 and \$22.83. Experienced workers can expect to earn wages between \$15.68 and \$44.90, which are higher than the living wage estimate.

Orange County — The majority (71%) of annual openings for these wildland resources and forestry-related occupations have entry-level wages **above** the living wage for one adult (\$17.36 in Orange County). Typical entry-level hourly wages are in a range between \$14.13 and \$21.92. Two of the three occupations pay above the county's living wage, with entry-level *forest and conservation workers* typically earning \$14.13, which is less than the living wage.

Experienced *forest and conservation technicians* and *first-line supervisors of farming, fishing, and forestry workers* can expect to earn wages between \$27.82 and \$42.92, which are higher than the living wage estimate; however, experienced *forest and conservation workers* typically earn \$14.16, which is less than the county's living wage. Interestingly, wages for *forest and conservation workers* do not vary that much from the 25th, median, and up to the 75th percentile, which is uncommon.

Riverside and San Bernardino counties (combined) — All three wildland resources and forestry-related occupations have entry-level wages **above** the living wage for one adult in both counties (\$11.97 in Riverside County and \$11.63 in San Bernardino County). Typical entry-level hourly wages are in a range between \$12.01 and \$20.04. Experienced workers can expect to earn wages between \$12.03 and \$30.64, which are higher than the living wage estimates.

Job Postings

Over the past 12 months, there have been 85 job advertisements for these wildland resources and forestry occupations in Los Angeles/Orange County. The highest number of job postings were for forestry technicians, agricultural chemical sprayers, and vector control specialists. The top skills were range management, natural resources, soil science, watershed management, and wildlife management. The top employers, by number of job postings, in the region were U.S. Department of Agriculture and Forest Service.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for *forest and conservation technicians*; and a high school diploma or equivalent for *first-line supervisors of farming, fishing, and forestry workers*, and *forest and conservation workers*. In the LA/OC region, the majority of annual job openings (59%) typically require a high school diploma.

National-level educational attainment data indicates between 22% and 37% of workers in the field have completed some college or an associate degree. The occupation with the highest number of annual openings (*forest and conservation technicians*) has more than one-third of workers (37%) in the field who have completed some college or an associate degree.

Of the 47% of wildland resources and forestry-related job postings listing a minimum education requirement in Los Angeles/Orange County, 60% (24) requested a high school diploma, 33% (13) requested a bachelor's degree and 8% (3) requested an associate degree.

Educational Supply

Community College Supply — Exhibit 3 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes: Forestry (0114.00) and Natural Resources (0115.00). The college with the most completions in the region is Citrus. Over the past 12 months, there were no other related program recommendation requests from regional community colleges.

Non-Community College Supply – Between 2014 and 2017, there were no awards conferred in related training programs by non-community college institutions throughout the region.

**Exhibit 3: Regional community college awards (certificates and degrees), 2017-20
Los Angeles and Orange Counties**

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0114.00	Forestry	Citrus	15	18	32	22
		LA Subtotal	15	18	32	22
		Supply Subtotal/Average	15	18	32	22
0115.00	Natural Resources	West LA	-	-	37	12
		LA Subtotal	-	-	37	12
		Saddleback	1	3	4	3
		OC Subtotal	1	3	4	3
		Supply Subtotal/Average	1	3	41	3
Supply Total/Average			16	21	73	37

Exhibit 4 shows the three-year average number of awards conferred by Riverside and San Bernardino regional community colleges in Natural Resources (0115.00). *Between 2017 and 2020, there were no completions in Forestry (0114.00).*

**Exhibit 4: Regional community college awards (certificates and degrees), 2017-20
Riverside and San Bernardino Counties**

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0115.00	Natural Resources	Desert	11	6	6	8
		Inland Empire Subtotal	11	6	6	8
Supply Total/Average			11	6	6	8

Appendix A: Occupational demand and wage data by county

Exhibit 5. Los Angeles County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Forest and Conservation Technicians (19-4071)	412	425	13	3%	48	\$20.15	\$25.08	\$29.82
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	294	276	(18)	(6%)	38	\$22.83	\$30.90	\$44.90
Forest and Conservation Workers (45-4011)	173	177	4	2%	26	\$15.65	\$15.67	\$15.68
Total	878	878	0	0%	112			

Exhibit 6. Orange County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Forest and Conservation Technicians (19-4071)	102	107	5	5%	12	\$18.69	\$23.32	\$27.82
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	112	100	(12)	(11%)	14	\$21.92	\$29.59	\$42.92
Forest and Conservation Workers (45-4011)	59	69	10	17%	11	\$14.13	\$14.14	\$14.16
Total	272	276	4	1%	37			

Exhibit 7. Los Angeles and Orange Counties

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Forest and Conservation Technicians (19-4071)	514	532	18	3%	61	Associate degree
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	405	376	(29)	(7%)	52	High school diploma or equivalent
Forest and Conservation Workers (45-4011)	232	246	14	6%	36	High school diploma or equivalent
Total	1,151	1,154	3	0%	149	

Exhibit 8. Riverside County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Forest and Conservation Technicians (19-4071)	152	158	8	4%	18	\$20.92	\$25.92	\$29.89
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	331	338	7	2%	46	\$17.90	\$25.73	\$30.84
Forest and Conservation Workers (45-4011)	82	84	2	3%	12	\$12.01	\$12.02	\$12.03
Total	565	581	17	3%	76			

Exhibit 9. San Bernardino County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Forest and Conservation Technicians (19-4071)	229	239	10	4%	28	\$19.36	\$23.97	\$27.59
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	122	123	1	1%	17	\$17.37	\$25.00	\$30.05
Forest and Conservation Workers (45-4011)	92	91	(1)	(1%)	13	\$12.01	\$12.02	\$12.03
Total	442	453	11	2%	58			

Exhibit 10. Riverside and San Bernardino counties

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Forest and Conservation Technicians (19-4071)	381	398	18	4%	46	Associate degree
First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011)	453	461	8	2%	63	High school diploma or equivalent
Forest and Conservation Workers (45-4011)	174	175	1	1%	25	High school diploma or equivalent
Total	1,007	1,033	27	3%	134	

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

Luke Meyer, Director
 Los Angeles/Orange County Center of Excellence
lmeyer7@mtsac.edu

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