

☐	Current
☒	Proposed

Classification / Working Title Environmental Scientist	Employee Name								
Position Number 014-619-0762-XXX	Supervisor Name / Classification David Phong / Senior Environmental Scientist (Supervisory)								
Division / Branch / Unit Plant Health and Pest Prevention Services / Plant Administration / Plant Data Analysis Services	Effective Date								
Collective Bargaining Unit Identifier (CBID) R10	Work Week Group (WWG) 2								
Tenure Permanent	Timebase Full-time								
Physical CDFA Headquarters Location 1220 N Street, Sacramento, CA 95814	Division / Program Hyperlink https://www.cdfa.ca.gov/plant/								
As an employee of the California Department of Food and Agriculture (CDFA), we are stewards of public resources, we operate in a transparent, authentic, and ethical manner and are accountable for our actions. We expect true, open partnership with our colleagues within CDFA and with our partners outside of CDFA. We demonstrate courtesy, dignity, compassion, and consideration in every interaction. Together, we strive to create a workplace and implement programs that promote diversity, equity, belonging, and accessibility. We base our vision for the future and our everyday decisions on fair, objective measures and cutting-edge science.									
Division / Branch / DAA Information: The Plant Data Analysis Services (PDAS) unit is responsible for monitoring the environmental presence and impacts of invasive species detected in California through surveying, trapping, or border station or interior parcel facility interceptions. PDAS reacts to the detection of invasive species through data analysis, mapping, and science-based recommendations to management.									
Position Identification: Under the supervision of a Senior Environmental Scientist (Supervisory), the Environmental Scientist performs a broad range of research activities involving environmental analysis and evaluation, including geospatial analysis, development of program tools, and the organization of training activities for the Plant Data Analysis Services (PDAS) Unit. The incumbent also works with the Division program staff (scientists and technicians) to define scientific and technical principles and identify available data sources related to desired maps, graphical displays, and other geospatial tools. The Environmental Scientist works closely with field staff to extract available data and support the Geographic Information Systems (GIS) infrastructure for scientific analysis and reporting of findings. This position requires proficiency in the use of personal computers and knowledge of mapping, databases, spreadsheets, and word processing software, as well as an understanding of pest biology.									
Special Requirements: <table border="0"> <tr> <td>☐ Conflict of Interest Filer (Form 700)</td> <td>☒ California Driver's License</td> </tr> <tr> <td>☐ Medical Clearance</td> <td>☐ Travel Required over 10% - Employer Pull Notice (EPN) Required</td> </tr> <tr> <td>☐ License / Certificate Required</td> <td>☒ Field Work: <u>15</u> %</td> </tr> <tr> <td>☐ Bilingual: Pass a State written and/or verbal proficiency exam in _____</td> <td>☐ Other (Specify): _____</td> </tr> </table>		☐ Conflict of Interest Filer (Form 700)	☒ California Driver's License	☐ Medical Clearance	☐ Travel Required over 10% - Employer Pull Notice (EPN) Required	☐ License / Certificate Required	☒ Field Work: <u>15</u> %	☐ Bilingual: Pass a State written and/or verbal proficiency exam in _____	☐ Other (Specify): _____
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☒ Telework (TW) Eligible: The amount of telework is at the discretion of the CDFA. It is based on the current TW policy and is subject to change.

Essential Functions:

Research and Geospatial Activities

40%

- Conduct problem exploration and definition, extracting information from various data sources to develop assumptions and the associated impacts. Independently gather, compile, edit, and interpret quantitative data related to the pest prevention system including, but not limited to, Pest and Damage Records (PDRs), Notices of Rejection (NORs), Warning/Hold Notices (008/008a), County Monthly Reports (CMR), and Nursery Licenses received from external countries, federal, state, county private enterprises, seed companies, and others throughout California to verify information is correct and complete. Prepare structured, professionally written reports to management on the findings.
- Develop and implement the best approach (paper reports, scanned reports, email, mobile computer applications and desktop computer applications) to ensure federal, state, and county staff supply accurate information such as PDRs, NORs 008/008a, CMR and Nursery licenses needed for analysis in a timely manner
- Gather and interpret weather data and pest lifecycle data from various sources such as universities, researchers, lifecycle calculations, quarantines, and probes from the Pest Detection and Emergency Project (PDEP) Branch, in order to turn historical data into real-time projections to determine if quarantine triggers are met or delimitation is needed for pests of significance. Provide this information to other branches or agencies as needed or required. This involves investigations into areas where precedents are sometimes lacking, and only sparse knowledge of the data exists.
- Plan and design mission-critical study approaches, develop and implement research methodologies, and interpret findings to develop, implement, and monitor systems related to mission-critical areas such as mapping, reporting, and statistical data. Present recommendations, alternatives, and findings of research to management to aid in the creation and expansion of quarantine boundaries and the regulation of establishments and commodities.
- Informed by the pest biology, evaluate methodologies used in geospatial science to plan and design research study methodology, and to compile, analyze, and interpret data used in the development of applications.
- Develop and refine cartographic products using standard mapping practices and conventions. Cartographic products may be developed for use at departmental and public meetings, as well as in documents and reports, and for static map formats and interactive online applications. Incumbent aids in the development of intranet/internet-based mapping applications to enhance the Department's information sharing and interactive mapping capabilities.
- Apply current scientific methods and principles in identification, research, and solution in the areas of quarantine response, establishments in quarantine, commodities by type and acreage, compliance agreements, holds, and violations.
- Perform ad hoc statistical GIS data analysis, sample sizes and margins of error, using advanced spatial concepts needed for new surveys requested by managers in the Department to determine the impact of sanction provisions in new quarantine areas detected.

	Help develop and monitor a variety of contracts for research and evaluation activities, including contributing to solution development and troubleshooting with internal information technology staff, contractors, and stakeholders. Help with procurement, as needed, and monitor and update the content in the GIS library.
30%	Program Specific Assignments - Travel to various locations while operating a State vehicle safely and responsibly to conduct regional or statewide pest detection surveys, trapping, and tree removal activities to ensure that the state's agriculture and natural resources remain free of citrus pests and diseases. - Compile reports and prepare geostatistical presentations representing evaluation of scientific studies to measure the effectiveness of Plant Division activities and to plan for redirection of efforts as necessary. - Work on multidisciplinary teams and independently with program supervisors to develop data reports showing status and trends for their programs, which provide assistance for program and policy planning. - Plan, organize, coordinate data collection, and conduct research by accessing PDR data, Pest Exclusion Information Management (PEIM) data and GIS data to prepare reports and displays crucial to departmental staff, other governmental entities, commissions, and other partners to ensure data accuracy and integrity. - Review, analyze, and assess changes in the federal and state laws and regulations that are relevant to the PDAS core functions, identify the impact of these changes, and propose recommendations to management regarding pest lifecycles commodities by acreage, weather data, and real-time data to generate reports. - Advise senior leadership, Program Directors, and stakeholders by creating and delivering reports and presentations explaining GIS analysis methodologies and imparting information, findings, and potential impacts to aid in making informed decisions. - Design research and methodology for new projects and conduct and monitor the retrieval and compilation of information and data for various statewide projects by performing spatial data information analysis as requested using PDR Data and PEIM data to work with scientific personnel. Work with PHPPS program ES staff in the development and support of digital data collections tools.
15%	Environmental Geospatial Analysis Activities - Establish GIS and PDAS policy or procedure for improving best practices in geostatistical and spatial analysis and display issues related to data gathering and calculating movement of regulated commodities, including geostatistical methodologies and solutions, to identify issues that arise in the area of GIS data gathered from pest traffic trends and quarantine incidents. - Independently or as part of a multi-stakeholder team, develop databases for tracking of environmental monitoring and geospatial analysis that cover the delimitations, track Pest and Damage Records (PDRs), and County Monthly Reports. - Analyze and evaluate available data from research and implementation activities on the effects of invasive pest tracking and the impacts on human health, vegetation, fish, wildlife, water supplies, land, and other aspects of the environment. - Keep abreast of current knowledge of scientific and technical research developments for projects by reading scientific manuals and articles and attending seminars, conferences, and training sessions.

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	• Prepare various written documents, (e.g., technical/final research reports, memorandum, correspondence, interagency agreements for geostatistical tables, charts, and graphs) for display and upload files and online reports to the web upon management review. • Develop appropriate methodologies through GIS data management and other appropriate software. Test complex spatial data using survey and forecasting techniques to identify and analyze demographic trends and utilize weather data to assess future movement of pests and damaging organisms via desired static maps, web-based maps, charts, graphical displays, and lifecycles of pests.
10%	Training-related • Provide training and technical assistance to Plant Division staff to ensure knowledge of applicable revisions to tools used at headquarters and in the field. This may require occasional statewide travel. • Participate in staff meetings, respond to inquiries, and handle correspondence as requested. • Produce and present reports and publications of findings and outcomes in support of the mission of PDAS. • Act as a resource to establish and maintain contacts with county agricultural commissioners, USDA, other state/federal agencies and individuals in the public and private sectors with notifications, program updates, and information regarding agricultural pest finds, warning/hold notices, notices of rejection, nursery licenses, and quarantines. • Responsible for the development of PDAS training curriculum and applicable training modules. • Update and maintain training material and documentation in support of Plant Division programs. • Fieldwork travel is required and is conducted mainly in County, State, and Federal Offices.
Non-Essential/Marginal Functions:	
5%	Other related duties as assigned.
Desirable Qualifications: • Experience with complex GIS systems, methodologies, and best practices related to data tools and systems • Experience with configuring data collection tools using the Esri ArcGIS Online or Enterprise platforms • Utilized remote sensing techniques to analyze aerial imagery and satellite data for environmental insights • Applied statistical methods and spatial analyses to evaluate environmental datasets. • Experience managing complex spatial databases. Experience with structured query language (SQL) and Python.	
Work Environment and Equipment Used: The duties of this position are performed 85% of the time indoors and 15% in the field. The employee's workstation is located inside the Department's headquarters in Sacramento equipped with standard office equipment. The fieldwork is conducted mainly in County, State, and Federal offices. When working in other offices, the employee may be exposed to adverse weather, high noise levels, spills, and moving equipment.	

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Physical/Mental Abilities:

The job requires lifting, bending, and reaching. Must be able to work independently under stressful conditions and be able to originate new ideas/techniques to complete assignments within the budgeted time.

Employee Certification

This duty statement reflects the typical duties of the essential functions described for the position. It is not considered an all-inclusive list of work requirements. I have read and discussed the duties of this position with my supervisor and understand I may perform other duties as assigned, including but not limited to, work in other functional areas to cover absences, peak work periods, or balance workload.

I certify I possess qualifications, including but not limited to, integrity, initiative, dependability, good judgement, and the ability to work cooperatively with others. Additionally, I am able to perform the assigned duties with or without reasonable accommodation. Should I have any concerns about performing the assigned duties, I will discuss them with the hiring manager who will provide the required information for the Office of Civil Rights.

I have read the duty statement and discussed the duties with my supervisor.

Employee Name (Print)	Signature	Date
Supervisor Statement: I have discussed the duties outlined in the duty statement and provided a copy to the employee.		
Supervisor Name (Print)	Signature	Date

CC: Employee
Official Personnel File
Supervisor's Drop File