

**SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**



**ITEM: 3.12
(ID # 14745)**

MEETING DATE:
Tuesday, May 11, 2021

FROM: FIRE DEPARTMENT:

SUBJECT: FIRE DEPARTMENT: Ratify and Approve the Amended and Restated Service Agreement for the Dead, Dying, Diseased Tree Removal Project Licensed Timber Operator Services with Emily Pearson dba Pearson Wood Service through March 15, 2022, District 3. [Aggregate Cost \$709,920 - 100% State Grant Funds]

RECOMMENDED MOTION: That the Board of Supervisors:

1. Ratify and approve the Amended and Restated Service Agreement for the Dead, Dying, Diseased Tree Removal Project Licensed Timber Operator Services between County of Riverside and Emily Pearson dba Pearson Wood Service (Amended and Restated Agreement) for a total contract aggregate amount of \$709,920 through March 15, 2022;
2. Authorize the Chair of the Board to sign the Amended and Restated Agreement on behalf of the County; and
3. Authorize the Purchasing Agent, in accordance with Ordinance No. 459, based on the availability of fiscal funding and as approved as to form by County Counsel to: sign amendments that exercise the options of the Amended and Restated Agreement, including modifications of the scope of services that stay within the intent of the Amended and Restated Agreement.

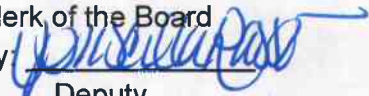
ACTION:


Bill Weiser, Fire Department Chief 4/16/2021

MINUTES OF THE BOARD OF SUPERVISORS

On motion of Supervisor Hewitt, seconded by Supervisor Spiegel and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes: Jeffries, Spiegel, Washington, Perez, and Hewitt
Nays: None
Absent: None
Date: May 11, 2021
xc: FIRE

Kecia R. Harper
Clerk of the Board
By 
Deputy

**SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE,
STATE OF CALIFORNIA**

FINANCIAL DATA	Current Fiscal Year:	Next Fiscal Year:	Total Cost:	Ongoing Cost
COST	\$207,000	\$460,078	\$ 709,920	\$ 0
NET COUNTY COST	\$ 0	\$ 0	\$ 0	\$ 0
SOURCE OF FUNDS: 100% State Grant Funds			Budget Adjustment: No	
			For Fiscal Year: 20/21-21/22	

C.E.O. RECOMMENDATION: Approve

BACKGROUND:

Summary

On November 6, 2018 via Minute Order No. 3.21, the Fire Department was approved for acceptance of the FY 2018 California Department of Forestry and Fire Protection Grant No. 5GG17196 in the amount of \$853,482 for the Dead, Dying, Diseased Tree Removal project. The grant's performance period ends March 15, 2022. This project is for removal of up to 350 dead, dying, and diseased (DDD) trees in the San Jacinto Mountains range of the San Bernardino National Forest in Riverside County. The area has experienced significant drought conditions which has caused non-native insects to ravage trees. The California Board of Forestry and Fire Protection has declared the area as a Zone of Infestation (ZOI) for both the Pine Bark Beetle and Gold Spotted Oak Borer (GSOB).

To accomplish the project goals, the department procured a Project Manager to oversee the project and a Licensed Timber Operator (LTO) to remove the designated trees. The LTO licensed under the California Forest Practice Act is the authorized agent that will conduct forest tree cutting and conduct the fuel removal and treatment operations and will comply with all laws and regulations relating to such tree cutting or removal.

Staff recommend approval of the Amended and Restated Agreement which has been approved as to form by County Counsel.

Impact on Residents and Businesses

These funds are dedicated to protecting the health and safety of the public and firefighting personnel against fire and fire related hazards in the unincorporated area. The tree removal operations will be on a cost-share basis with the property owner agreeing to be responsible for paying the LTO directly for 25% of the operational costs, and the grant will cover the remaining 75%. There is a need-based component where the grant may pay for 100% of the cost for low-income property owners. Tree removal is only done with consent and agreement from the property owners.

Additional Fiscal Information

**SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE,
STATE OF CALIFORNIA**

During FY 19/20 \$42,842 was spent and in FY 20/21, as of early February 2021, \$177,000 has been spent. The remaining amount will be available to spend in FY 20/21 and FY 21/22 through the completion of the project.

Contract History and Price Reasonableness

On August 16, 2019 Purchasing on behalf of the Fire Department released Request for Quote (RFQ) #FPARC-373 for DEAD, DYING, DISEASED TREE REMOVAL LICENSED TIMBER OPERATOR. The solicitation was released on Public Purchase and advertised on the Purchasing Current Open Bids page. Four (4) companies attended the pre-bid meeting and three (3) submitted quotes. Bid calculation costs ranged from \$850 – \$6,250 for removal and disposal of a 1-12" diameter tree. Pearson Wood Service was determined to be the lowest responsive bidder and was awarded the contract.

Due to the partial project time remaining in FY 19/20, a not to exceed \$100,000 Personal Service Agreement was issued to the Contractor, so the work could be started, with the intent to seek Board Approval for an Amended and Restated Agreement, which is the action before the Board. Due to Covid-19 impacts and staffing changes, this action has taken longer than anticipated.


Diane Sinclair, Deputy Director-Fire Admin 4/29/2021


Tina Grande, Director of Purchasing 4/16/2021


Cheryl Williams 4/29/2021


Gregory V. Priarios, Director County Counsel 4/28/2021

AMENDED and RESTATED SERVICE AGREEMENT

for

DEAD, DYING, DISEASED TREE REMOVAL PROJECT

LICENSED TIMBER OPERATOR SERVICES

between

COUNTY OF RIVERSIDE

and

EMILY PEARSON, d.b.a. PEARSON WOOD SERVICE



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This Agreement, by and between EMILY PEARSON, d.b.a. PEARSON WOOD SERVICE, a California sole proprietor (herein referred to as "CONTRACTOR"), and the COUNTY OF RIVERSIDE, a political subdivision of the State of California, (herein referred to as "COUNTY"). The parties agree as follows:

1. Description of Services

1.1 CONTRACTOR shall provide all services as outlined and specified in Exhibit A, Scope of Services, at the prices stated in Exhibit B, Payment Provisions, and all requirements stated in Exhibits C through H to the Agreement.

1.2 CONTRACTOR represents that it has the skills, experience, and knowledge necessary to perform under this Agreement and the COUNTY relies upon this representation. CONTRACTOR shall perform to the satisfaction of the COUNTY and in conformance to and consistent with the highest standards of firms/professionals in the same discipline in the State of California.

1.3 CONTRACTOR affirms this it is fully apprised of all of the work to be performed under this Agreement; and the CONTRACTOR agrees it can properly perform this work at the prices stated in Exhibit B. CONTRACTOR is not to perform services or provide products outside of the Agreement.

1.4 Acceptance by the COUNTY of the CONTRACTOR's performance under this Agreement does not operate as a release of CONTRACTOR's responsibility for full compliance with the terms of this Agreement.

2. Period of Performance

2.1 This Agreement shall be effective upon signature of this Agreement by both parties and continues in effect through **March 15, 2022**, at the sole discretion of the COUNTY, based on the availability of funding, unless terminated earlier. CONTRACTOR shall commence performance upon signature of this Agreement by both parties and shall diligently and continuously perform thereafter. The Riverside County Board of Supervisors is the only authority that may obligate the County for a non-cancelable multi-year agreement.

3. Compensation

3.1 The COUNTY shall pay the CONTRACTOR for services performed and expenses incurred in accordance with the terms of Exhibit B, Payment Provisions. Maximum payments by COUNTY to CONTRACTOR shall not exceed **seven hundred nine thousand nine hundred twenty dollars**

(\$709,920.00) aggregate including all expenses for the period of performance beginning October 14, 2019 and continuing through March 15, 2022. The COUNTY is not responsible for any fees or costs incurred above or beyond the contracted amount and shall have no obligation to purchase any specified amount of services or products. Unless otherwise specifically stated in Exhibit B, COUNTY shall not be responsible for payment of any of CONTRACTOR's expenses related to this Agreement.

3.2 No price increases will be permitted during the first year of this Agreement (If applicable). All price decreases (for example, if CONTRACTOR offers lower prices to another governmental entity) will automatically be extended to the COUNTY. The COUNTY requires written proof satisfactory to COUNTY of cost increases prior to any approved price adjustment. After the first year of the award, a minimum of 30-days advance notice in writing is required to be considered and approved by COUNTY. No retroactive price adjustments will be considered. Any price increases must be stated in a written amendment to this Agreement. The net dollar amount of profit will remain firm during the period of the Agreement. Annual increases shall not exceed the Consumer Price Index- All Consumers, All Items - Greater Los Angeles, Riverside and Orange County areas and be subject to satisfactory performance review by the COUNTY and approved (if needed) for budget funding by the Board of Supervisors.

3.3 CONTRACTOR shall be paid only in accordance with an invoice submitted to COUNTY by CONTRACTOR and COUNTY shall pay the invoice within thirty (30) working days from the date of receipt of the invoice. **Payment shall be made to CONTRACTOR only after services have been rendered and completion of the services have been confirmed by the COUNTY contracted project management firm, DRC Consulting, and acceptance has been made by COUNTY.** Prepare invoices in duplicate. For this Agreement, send the original and duplicate copies of invoices to:

**Riverside County Fire Department
Attn: Accounts Payable
210 W. San Jacinto Ave. – Perris, CA 92570**

Or invoices may be submitted via email to: APIInvoices@fire.ca.gov

Email invoice submissions MUST also be sent to: CALFIRERRUGRANTS@fire.ca.gov

- a) Each invoice shall contain a minimum of the following information: invoice number and date; remittance address; bill-to and ship-to addresses of ordering department/division; Agreement number (FPARC-96888-001-02/22); tree removal service call number reference provided by project manager, job location, quantity of trees removed, property owner's portion of cost (25%) if applicable, service descriptions, unit prices, extensions,

separate line for disposal fees with weight ticket included as supporting documentation, sales/use tax if applicable, and an invoice total.

b) Invoices shall be rendered in arrears.

3.4 The COUNTY obligation for payment of this Agreement beyond the current fiscal year end is contingent upon and limited by the availability of COUNTY funding from which payment can be made, and invoices shall be rendered in arrears. In the State of California, Government agencies are not allowed to pay excess interest and late charges, per Government Code, Section 926.10. No legal liability on the part of the COUNTY shall arise for payment beyond June 30 of each calendar year unless funds are made available for such payment. In the event that such funds are not forthcoming for any reason, COUNTY shall immediately notify CONTRACTOR in writing; and this Agreement shall be deemed terminated, have no further force, and effect.

4. Alteration or Changes to the Agreement

4.1 The Board of Supervisors and the COUNTY Purchasing Agent and/or his designee is the only authorized COUNTY representatives who may at any time, by written order, alter this Agreement. If any such alteration causes an increase or decrease in the cost of, or the time required for the performance under this Agreement, an equitable adjustment shall be made in the Agreement price or delivery schedule, or both, and the Agreement shall be modified by written amendment accordingly.

4.2 Any claim by the CONTRACTOR for additional payment related to this Agreement shall be made in writing by the CONTRACTOR within 30 days of when the CONTRACTOR has or should have notice of any actual or claimed change in the work, which results in additional and unanticipated cost to the CONTRACTOR. If the COUNTY Purchasing Agent decides that the facts provide sufficient justification, he may authorize additional payment to the CONTRACTOR pursuant to the claim. Nothing in this section shall excuse the CONTRACTOR from proceeding with performance of the Agreement even if there has been a change.

5. Termination

5.1. COUNTY may terminate this Agreement without cause upon 30 days written notice served upon the CONTRACTOR stating the extent and effective date of termination.

5.2 COUNTY may, upon five (5) days written notice terminate this Agreement for CONTRACTOR's default, if CONTRACTOR refuses or fails to comply with the terms of this Agreement or fails to make progress that may endanger performance and does not immediately cure such failure. In the

event of such termination, the COUNTY may proceed with the work in any manner deemed proper by COUNTY.

5.3 After receipt of the notice of termination, CONTRACTOR shall:

- (a) Stop all work under this Agreement on the date specified in the notice of termination; and
- (b) Transfer to COUNTY and deliver in the manner as directed by COUNTY any materials, reports or other products, which, if the Agreement had been completed or continued, would have been required to be furnished to COUNTY.

5.4 After termination, COUNTY shall make payment only for CONTRACTOR's performance up to the date of termination in accordance with this Agreement.

5.5 CONTRACTOR's rights under this Agreement shall terminate (except for fees accrued prior to the date of termination) upon dishonesty or a willful or material breach of this Agreement by CONTRACTOR; or in the event of CONTRACTOR's unwillingness or inability for any reason whatsoever to perform the terms of this Agreement. In such event, CONTRACTOR shall not be entitled to any further compensation under this Agreement.

5.6 If the Agreement is federally or State funded, CONTRACTOR cannot be debarred from the System for Award Management (SAM). CONTRACTOR must notify the COUNTY immediately of a debarment. Reference: System for Award Management (SAM) at <https://www.sam.gov> for Central Contractor Registry (CCR), Federal Agency Registration (Fedreg), Online Representations and Certifications Application, and Excluded Parties List System (EPLS)). Excluded Parties Listing System (EPLS) (<http://www.epls.gov>) (Executive Order 12549, 7 CFR Part 3017, 45 CFR Part 76, and 44 CFR Part 17). The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS.

5.7 The rights and remedies of COUNTY provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or this Agreement.

6. Ownership/Use of Contract Materials and Products

The CONTRACTOR agrees that all materials, reports or products in any form, including electronic, created by CONTRACTOR for which CONTRACTOR has been compensated by COUNTY pursuant to this Agreement shall be the sole property of the COUNTY. The material, reports or products may be used by the COUNTY for any purpose that the COUNTY deems to be appropriate, including, but not limited to,

duplication and/or distribution within the COUNTY or to third parties. CONTRACTOR agrees not to release or circulate in whole or part such materials, reports, or products without prior written authorization of the COUNTY.

7. Conduct of Contractor

7.1 The CONTRACTOR covenants that it presently has no interest, including, but not limited to, other projects or contracts, and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with CONTRACTOR's performance under this Agreement. The CONTRACTOR further covenants that no person or subcontractor having any such interest shall be employed or retained by CONTRACTOR under this Agreement. The CONTRACTOR agrees to inform the COUNTY of all the CONTRACTOR's interests, if any, which are or may be perceived as incompatible with the COUNTY's interests.

7.2 The CONTRACTOR shall not, under circumstances which could be interpreted as an attempt to influence the recipient in the conduct of his/her duties, accept any gratuity or special favor from individuals or firms with whom the CONTRACTOR is doing business or proposing to do business, in accomplishing the work under this Agreement.

7.3 The CONTRACTOR or its employees shall not offer gifts, gratuity, favors, and entertainment directly or indirectly to COUNTY employees.

8. Inspection of Service; Quality Control/Assurance

8.1 All performance (which includes services, workmanship, materials, supplies and equipment furnished or utilized in the performance of this Agreement) shall be subject to inspection and test by the COUNTY or other regulatory agencies at all times. The CONTRACTOR shall provide adequate cooperation to any inspector or other COUNTY representative to permit him/her to determine the CONTRACTOR's conformity with the terms of this Agreement. If any services performed or products provided by CONTRACTOR are not in conformance with the terms of this Agreement, the COUNTY shall have the right to require the CONTRACTOR to perform the services or provide the products in conformance with the terms of the Agreement at no additional cost to the COUNTY. When the services to be performed or the products to be provided are of such nature that the difference cannot be corrected; the COUNTY shall have the right to: (1) require the CONTRACTOR immediately to take all necessary steps to ensure future performance in conformity with the terms of the Agreement; and/or (2) reduce the Agreement price to reflect the reduced value of the services performed or products provided. The COUNTY may also

terminate this Agreement for default and charge to CONTRACTOR any costs incurred by the COUNTY because of the CONTRACTOR's failure to perform.

8.2 CONTRACTOR shall establish adequate procedures for self-monitoring and quality control and assurance to ensure proper performance under this Agreement; and shall permit a COUNTY representative or other regulatory official to monitor, assess, or evaluate CONTRACTOR's performance under this Agreement at any time, upon reasonable notice to the CONTRACTOR.

9. Independent Contractor/Employment Eligibility

9.1 The CONTRACTOR is, for purposes relating to this Agreement, an independent contractor and shall not be deemed an employee of the COUNTY. It is expressly understood and agreed that the CONTRACTOR (including its employees, agents, and subcontractors) shall in no event be entitled to any benefits to which COUNTY employees are entitled, including but not limited to overtime, any retirement benefits, worker's compensation benefits, and injury leave or other leave benefits. There shall be no employer-employee relationship between the parties; and CONTRACTOR shall hold COUNTY harmless from any and all claims that may be made against COUNTY based upon any contention by a third party that an employer-employee relationship exists by reason of this Agreement. It is further understood and agreed by the parties that CONTRACTOR in the performance of this Agreement is subject to the control or direction of COUNTY merely as to the results to be accomplished and not as to the means and methods for accomplishing the results.

9.2 CONTRACTOR warrants that it shall make its best effort to fully comply with all federal and state statutes and regulations regarding the employment of aliens and others and to ensure that employees performing work under this Agreement meet the citizenship or alien status requirement set forth in federal statutes and regulations. CONTRACTOR shall obtain, from all employees performing work hereunder, all verification and other documentation of employment eligibility status required by federal or state statutes and regulations including, but not limited to, the Immigration Reform and Control Act of 1986, 8 U.S.C. §1324 et seq., as they currently exist and as they may be hereafter amended. CONTRACTOR shall retain all such documentation for all covered employees, for the period prescribed by the law.

9.3 Ineligible Person shall be any individual or entity who: Is currently excluded, suspended, debarred or otherwise ineligible to participate in the federal health care programs; or has been convicted of a criminal offense related to the provision of health care items or services and has not been reinstated in the federal health care programs after a period of exclusion, suspension, debarment, or ineligibility.

9.4 CONTRACTOR shall screen prospective Covered Individuals prior to hire or engagement. CONTRACTOR shall not hire or engage any Ineligible Person to provide services directly relative to this Agreement. CONTRACTOR shall screen all current Covered Individuals within sixty (60) days of execution of this Agreement to ensure that they have not become Ineligible Persons unless CONTRACTOR has performed such screening on same Covered Individuals under a separate agreement with COUNTY within the past six (6) months. Covered Individuals shall be required to disclose to CONTRACTOR immediately any debarment, exclusion or other event that makes the Covered Individual an Ineligible Person. CONTRACTOR shall notify COUNTY within five (5) business days after it becomes aware if a Covered Individual providing services directly relative to this Agreement becomes debarred, excluded or otherwise becomes an Ineligible Person.

9.5 CONTRACTOR acknowledges that Ineligible Persons are precluded from providing federal and state funded health care services by contract with COUNTY in the event that they are currently sanctioned or excluded by a federal or state law enforcement regulatory or licensing agency. If CONTRACTOR becomes aware that a Covered Individual has become an Ineligible Person, CONTRACTOR shall remove such individual from responsibility for, or involvement with, COUNTY business operations related to this Agreement.

9.6 CONTRACTOR shall notify COUNTY within five (5) business days if a Covered Individual or entity is currently excluded, suspended or debarred, or is identified as such after being sanction screened. Such individual or entity shall be promptly removed from participating in any activity associated with this Agreement.

10. Subcontract for Work or Services

No contract shall be made by the CONTRACTOR with any other party for furnishing any of the work or services under this Agreement without the prior written approval of the COUNTY; but this provision shall not require the approval of contracts of employment between the CONTRACTOR and personnel assigned under this Agreement, or for parties named in the proposal and agreed to under this Agreement.

11. Disputes

11.1 The parties shall attempt to resolve any disputes amicably at the working level. If that is not successful, the dispute shall be referred to the senior management of the parties. Any dispute relating to this Agreement, which is not resolved by the parties, shall be decided by the COUNTY's Purchasing

Department's Compliance Contract Officer who shall furnish the decision in writing. The decision of the COUNTY's Compliance Contract Officer shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary, or so grossly erroneous to imply bad faith. The CONTRACTOR shall proceed diligently with the performance of this Agreement pending the resolution of a dispute.

11.2 Prior to the filing of any legal action related to this Agreement, the parties shall be obligated to attend a mediation session in Riverside County before a neutral third party mediator. A second mediation session shall be required if the first session is not successful. The parties shall share the cost of the mediations.

12. Licensing and Permits

CONTRACTOR shall comply with all State or other licensing requirements, including but not limited to the provisions of Chapter 9 of Division 3 of the Business and Professions Code. All licensing requirements shall be met at the time proposals are submitted to the COUNTY. CONTRACTOR warrants that it has all necessary permits, approvals, certificates, waivers and exemptions necessary for performance of this Agreement as required by the laws and regulations of the United States, the State of California, the County of Riverside and all other governmental agencies with jurisdiction, and shall maintain these throughout the term of this Agreement.

13. Use By Other Political Entities – Intentionally Deleted

14. Non-Discrimination

CONTRACTOR shall not be discriminate in the provision of services, allocation of benefits, accommodation in facilities, or employment of personnel on the basis of ethnic group identification, race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status or sex in the performance of this Agreement; and, to the extent they shall be found to be applicable hereto, shall comply with the provisions of the California Fair Employment and Housing Act (Gov. Code 12900 et. seq), the Federal Civil Rights Act of 1964 (P.L. 88-352), the Americans with Disabilities Act of 1990 (42 U.S.C. §1210 et seq.) and all other applicable laws or regulations.

15. Records and Documents

CONTRACTOR shall make available, upon written request by any duly authorized Federal, State, or COUNTY agency, a copy of this Agreement and such books, documents and records as are necessary to

certify the nature and extent of the CONTRACTOR's costs related to this Agreement. All such books, documents and records shall be maintained by CONTRACTOR for at least five years following termination of this Agreement and be available for audit by the COUNTY. CONTRACTOR shall provide to the COUNTY reports and information related to this Agreement as requested by COUNTY.

16. Confidentiality

16.1 The CONTRACTOR shall not use for personal gain or make other improper use of privileged or confidential information which is acquired in connection with this Agreement. The term "privileged or confidential information" includes but is not limited to: unpublished or sensitive technological or scientific information; medical, personnel, or security records; anticipated material requirements or pricing/purchasing actions; COUNTY information or data which is not subject to public disclosure; COUNTY operational procedures; and knowledge of selection of contractors, subcontractors or suppliers in advance of official announcement.

16.2 The CONTRACTOR shall protect from unauthorized disclosure names and other identifying information concerning persons receiving services pursuant to this Agreement, except for general statistical information not identifying any person. The CONTRACTOR shall not use such information for any purpose other than carrying out the CONTRACTOR's obligations under this Agreement. The CONTRACTOR shall promptly transmit to the COUNTY all third party requests for disclosure of such information. The CONTRACTOR shall not disclose, except as otherwise specifically permitted by this Agreement or authorized in advance in writing by the COUNTY, any such information to anyone other than the COUNTY. For purposes of this paragraph, identity shall include, but not be limited to, name, identifying number, symbol, or other identifying particulars assigned to the individual, such as finger or voice print or a photograph.

17. Administration/Contract Liaison

The COUNTY Fire Department Grants Program Manager, or designee, in cooperation with the Purchasing Department, or designee, shall administer this Agreement on behalf of the COUNTY and serve as the liaison with the CONTRACTOR in connection with this Agreement.

17.1 County Fire Department Grants Program Manager contact information:

Administrative Services Analyst II – Grants

Email: CALFIRERRUGRANTS@fire.ca.gov

Direct Phone: (951) 940-6361

18. Notices

All correspondence and notices required or contemplated by this Agreement shall be delivered to the respective parties at the addresses set forth below and are deemed submitted two days after their deposit in the United States mail, postage prepaid:

COUNTY OF RIVERSIDE

RIVERSIDE COUNTY FIRE

Attention: ASA II – Grants

210 W. SAN JACINTO AVE.

PERRIS, CA 92570

Email: CALFIRERRUGRANTS@fire.ca.gov

CONTRACTOR

PEARSON WOOD SERVICE

Attn: Emily Pearson

P.O. BOX 301

IDYLLWILD, CA 92549

Email: emily@lovethehill.com

19. Force Majeure

If either party is unable to comply with any provision of this Agreement due to causes beyond its reasonable control, and which could not have been reasonably anticipated, such as acts of God, acts of war, civil disorders, or other similar acts, such party shall not be held liable for such failure to comply.

20. EDD Reporting Requirements

In order to comply with child support enforcement requirements of the State of California, the COUNTY may be required to submit a Report of Independent Contractor(s) form **DE 542** to the Employment Development Department. The CONTRACTOR agrees to furnish the required data and certifications to the COUNTY within 10 days of notification of award of Agreement when required by the EDD. This data will be transmitted to governmental agencies charged with the establishment and enforcement of child support orders. Failure of the CONTRACTOR to timely submit the data and/or certificates required may result in the contract being awarded to another contractor. In the event a contract has been issued, failure of the CONTRACTOR to comply with all federal and state reporting requirements for child support enforcement or to comply with all lawfully served Wage and Earnings Assignments Orders and Notices of Assignment shall constitute a material breach of Agreement. If CONTRACTOR has any questions concerning this reporting requirement, please call (916) 657-0529. CONTRACTOR should also contact its local Employment Tax Customer Service Office listed in the telephone directory in the State Government section under "Employment Development Department" or access their Internet site at www.edd.ca.gov.

21. Hold Harmless/Indemnification

21.1 CONTRACTOR shall indemnify and hold harmless the County of Riverside, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Supervisors, elected and appointed officials, employees, agents and representatives (individually and collectively hereinafter referred to as Indemnitees) from any liability, action, claim or damage whatsoever, based or asserted upon any services of CONTRACTOR, its officers, employees, subcontractors, agents or representatives arising out of or in any way relating to this Agreement, including but not limited to property damage, bodily injury, or death or any other element of any kind or nature. CONTRACTOR shall defend the Indemnitees at its sole expense including all costs and fees (including, but not limited, to attorney fees, cost of investigation, defense and settlements or awards) in any claim or action based upon such acts, omissions or services.

21.2 With respect to any action or claim subject to indemnification herein by CONTRACTOR, CONTRACTOR shall, at their sole cost, have the right to use counsel of their own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of COUNTY; provided, however, that any such adjustment, settlement or compromise in no manner whatsoever limits or circumscribes CONTRACTOR indemnification to Indemnitees as set forth herein.

21.3 CONTRACTOR'S obligation hereunder shall be satisfied when CONTRACTOR has provided to COUNTY the appropriate form of dismissal relieving COUNTY from any liability for the action or claim involved.

21.4 The specified insurance limits required in this Agreement shall in no way limit or circumscribe CONTRACTOR'S obligations to indemnify and hold harmless the Indemnitees herein from third party claims.

22. Insurance

22.1 Without limiting or diminishing the CONTRACTOR'S obligation to indemnify or hold the COUNTY harmless, CONTRACTOR shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Agreement. As respects to the insurance section only, the COUNTY herein refers to the County of Riverside, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Supervisors, employees, elected or appointed officials, agents, or representatives as Additional Insureds.

A. Workers' Compensation:

If the CONTRACTOR has employees as defined by the State of California, the CONTRACTOR shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than \$1,000,000 per person per accident. The policy shall be endorsed to waive subrogation in favor of The County of Riverside.

B. Commercial General Liability:

Commercial General Liability insurance coverage, including but not limited to, premises liability, unmodified contractual liability, products and completed operations liability, personal and advertising injury, and cross liability coverage, covering claims which may arise from or out of CONTRACTOR'S performance of its obligations hereunder. Policy shall name the COUNTY as Additional Insured. Policy's limit of liability shall not be less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit.

C. Vehicle Liability:

If vehicles or mobile equipment is used in the performance of the obligations under this Agreement, then CONTRACTOR shall maintain liability insurance for all owned, non-owned, or hired vehicles so used in an amount not less than \$1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this agreement or be no less than two (2) times the occurrence limit. Policy shall name the COUNTY as Additional Insureds.

D. Professional Liability:

Contractor shall maintain Professional Liability Insurance providing coverage for the Contractor's performance of work included within this Agreement, with a limit of liability of not less than \$1,000,000 per occurrence and \$2,000,000 annual aggregate. If Contractor's Professional Liability Insurance is written on a claims made basis rather than an occurrence basis, such insurance shall continue through the term of this Agreement and CONTRACTOR shall purchase at his sole expense either 1) an Extended Reporting Endorsement (also, known as Tail Coverage); or 2) Prior Dates Coverage from new insurer with a retroactive date back to the date of, or prior to, the inception of this Agreement; or 3) demonstrate through Certificates of Insurance that CONTRACTOR has Maintained continuous coverage with the same or original insurer. Coverage provided under items; 1), 2), or 3) will continue as long as the law allows.

E. General Insurance Provisions - All lines:

1) Any insurance carrier providing insurance coverage hereunder shall be admitted to the State of California and have an A M BEST rating of not less than A: VIII (A:8) unless such requirements are waived, in writing, by the County Risk Manager. If the County's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term.

2) The CONTRACTOR must declare its insurance self-insured retention for each coverage required herein. If any such self-insured retention exceeds \$500,000 per occurrence each such retention shall have the prior written consent of the County Risk Manager before the commencement of operations under this Agreement. Upon notification of self-insured retention unacceptable to the COUNTY, and at the election of the County's Risk Manager, CONTRACTOR'S carriers shall either; 1) reduce or eliminate such self-insured retention as respects this Agreement with the COUNTY, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses.

3) CONTRACTOR shall cause CONTRACTOR'S insurance carrier(s) to furnish the County of Riverside with either 1) a properly executed original Certificate(s) of Insurance and certified original copies of Endorsements effecting coverage as required herein, and 2) if requested to do so orally or in writing by the County Risk Manager, provide original Certified copies of policies including all Endorsements and all attachments thereto, showing such insurance is in full force and effect. Further, said Certificate(s) and policies of insurance shall contain the covenant of the insurance carrier(s) that thirty (30) days written notice shall be given to the County of Riverside prior to any material modification, cancellation, expiration or reduction in coverage of such insurance. In the event of a material modification, cancellation, expiration, or reduction in coverage, this Agreement shall terminate forthwith, unless the County of Riverside receives, prior to such effective date, another properly executed original Certificate of Insurance and original copies of endorsements or certified original policies, including all endorsements and attachments thereto evidencing coverage's set forth herein and the insurance required herein is in full force and effect. CONTRACTOR shall not commence operations until the COUNTY has been furnished original Certificate (s) of Insurance and certified original copies of endorsements and if requested, certified original policies of insurance including all endorsements and any and all other attachments as required in this Section. An individual authorized by the insurance carrier shall sign the original endorsements for each policy and the Certificate of Insurance.

4) It is understood and agreed to by the parties hereto that the CONTRACTOR'S insurance shall be construed as primary insurance, and the COUNTY'S insurance and/or deductibles and/or self-insured retention's or self-insured programs shall not be construed as contributory.

5) If, during the term of this Agreement or any extension thereof, there is a material change in the scope of services; or, there is a material change in the equipment to be used in the performance of the scope of work; or, the term of this Agreement, including any extensions thereof, exceeds five (5) years; the COUNTY reserves the right to adjust the types of insurance and the monetary limits of liability required under this Agreement, if in the County Risk Manager's reasonable judgment, the amount or type of insurance carried by the CONTRACTOR has become inadequate.

6) CONTRACTOR shall pass down the insurance obligations contained herein to all tiers of subcontractors working under this Agreement.

7) The insurance requirements contained in this Agreement may be met with a program(s) of self-insurance acceptable to the COUNTY.

8) CONTRACTOR agrees to notify COUNTY of any claim by a third party or any incident or event that may give rise to a claim arising from the performance of this Agreement.

23. General

23.1 CONTRACTOR shall not delegate or assign any interest in this Agreement, whether by operation of law or otherwise, without the prior written consent of COUNTY. Any attempt to delegate or assign any interest herein shall be deemed void and of no force or effect.

23.2 Any waiver by COUNTY of any breach of any one or more of the terms of this Agreement shall not be construed to be a waiver of any subsequent or other breach of the same or of any other term of this Agreement. Failure on the part of COUNTY to require exact, full, and complete compliance with any terms of this Agreement shall not be construed as in any manner changing the terms or preventing COUNTY from enforcement of the terms of this Agreement.

23.3 In the event the CONTRACTOR receives payment under this Agreement, which is later disallowed by COUNTY for nonconformance with the terms of the Agreement, the CONTRACTOR shall promptly refund the disallowed amount to the COUNTY on request; or at its option the COUNTY may offset the amount disallowed from any payment due to the CONTRACTOR.

23.4 CONTRACTOR shall not provide partial delivery or shipment of services or products unless specifically stated in the Agreement.

23.5 CONTRACTOR shall not provide any services or products subject to any chattel mortgage or under a conditional sales contract or other agreement by which an interest is retained by a third party. The

CONTRACTOR warrants that it has good title to all materials or products used by CONTRACTOR or provided to COUNTY pursuant to this Agreement, free from all liens, claims, or encumbrances.

23.6 Nothing in this Agreement shall prohibit the COUNTY from acquiring the same type or equivalent equipment, products, materials or services from other sources, when deemed by the COUNTY to be in its best interest. The COUNTY reserves the right to purchase more or less than the quantities specified in this Agreement.

23.7 The COUNTY agrees to cooperate with the CONTRACTOR in the CONTRACTOR's performance under this Agreement, including, if stated in the Agreement, providing the CONTRACTOR with reasonable facilities and timely access to COUNTY data, information, and personnel.

23.8 CONTRACTOR shall comply with all applicable Federal, State and local laws and regulations. CONTRACTOR will comply with all applicable COUNTY policies and procedures. In the event that there is a conflict between the various laws or regulations that may apply, the CONTRACTOR shall comply with the more restrictive law or regulation.

23.9 CONTRACTOR shall comply with all air pollution control, water pollution, safety and health ordinances, statutes, or regulations, which apply to performance under this Agreement.

23.10 CONTRACTOR shall comply with all requirements of the Occupational Safety and Health Administration (OSHA) standards and codes as set forth by the U.S. Department of Labor and the State of California (Cal/OSHA).

23.11 This Agreement shall be governed by the laws of the State of California. Any legal action related to the performance or interpretation of this Agreement shall be filed only in the Superior Court of the State of California located in Riverside, California, and the parties waive any provision of law providing for a change of venue to another location. In the event any provision in this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

23.12 This Agreement, including any attachments or exhibits, constitutes the entire Agreement of the parties with respect to its subject matter and supersedes all prior and contemporaneous representations, proposals, discussions and communications, whether oral or in writing. This Agreement may be changed or modified only by a written amendment signed by authorized representatives of both parties.

[Signatures on following page]

IN WITNESS WHEREOF, the Parties hereto have caused their duly authorized representatives to execute this Agreement.

COUNTY OF RIVERSIDE, a political
subdivision of the State of California

By: Karen S. Spiegel
Karen Spiegel, Chair
Board of Supervisors

Dated: 05-11-2021

EMILY PEARSON
d.b.a. PEARSON WOOD SERVICE
a California sole proprietorship

By: Emily Pearson
Name: Emily Pearson
Title: Sole Proprietor

Dated: 3/30/21

APPROVED AS TO FORM:

Gregory P. Priamos
County Counsel

By: [Signature]
Amrit P. Dhillon
Deputy County Counsel

ATTEST:

Kecia R. Harper
Clerk of the Board

By: [Signature]
Deputy

EXHIBITS ATTACHED BEHIND THIS PAGE

Funding for this project provided by the California Department of Forestry and Fire Protection as part of the California Climate Investments Program



The Riverside County - Dead, Dying, Diseased Tree Removal Project is part of California Climate Investments, a statewide program that puts billions of Cap - and - Trade dollars to work reducing GHG emissions, strengthening the economy, and improving public health and the environment— particularly in disadvantaged communities. The Cap-and-Trade program also creates a financial incentive for industries to invest in clean technologies and develop innovative ways to reduce pollution. California Climate Investments projects include affordable housing, renewable energy, public transportation, zero-emission vehicles, environmental restoration, more sustainable agriculture, recycling, and much more. At least 35 percent of these investments are located within and benefiting residents of disadvantaged communities, low-income communities, and low-income households across California. For more information visit the California Climate Investments website at: www.caclimateinvestments.ca.gov

Grant Project Period of Performance: March 16, 2019 – March 15, 2022

EXHIBIT A SCOPE OF SERVICES

A1.0 Background: Riverside County Fire Department has been awarded funding from the California Climate Investment (CCI) Grant for Greenhouse Gas Reduction and Hazardous Fuel Reduction by the State of California, by and through the California Department of Forestry and Fire Protection (CAL FIRE).

Project Title: Riverside County - Dead, Dying, Diseased (DDD) Tree Removal Project

Project Tracking Number: 17-FP-RRU-2011

Project Grant Number: 5GG17196

Estimate Grant Period of Performance: March 16, 2019 – March 15, 2022

A2.0 Overview: The designated area referenced in **Exhibit F Area Map** located in the San Jacinto Mountains range of the San Bernardino National Forest in Riverside County has experienced extremely high tree mortality due to the recent severe drought conditions. The gold spotted oak borer (GSOB) and native bark beetles are killing oak and pine species in the southern California forested landscape. The California Board of Forestry and Fire Protection have declared the area as a Zone of Infestation (ZOI) for both the pine bark beetle and GSOB. Trees are an important component of forested ecosystems in California and removal of already infested, dead, dying, and/or diseased trees will eliminate pests and slow the spread rate, enhancing the survival rate of existing tree populations and create a fire safe condition. Trees are located on private parcels in the mountain communities with elevations between 3000 and 6000 feet on various aspects and slopes. This project will remove up to 350 dead, dying, and diseased (DDD) trees, focus on trees that are both greater than 100 feet as well as those within 100 feet of the structure, increase carbon sequestration, increase carbon storage, and reduce Greenhouse Gas (GHG) during wildfires. The Licensed Timber Operator (LTO) will conduct operations under the direction of the COUNTY contracted Project Manager (PM), DRC Consulting. Depending on the tree species, treatment will consist of felling, limbing, debarking, bucking and chipping of infested trees assessed by the PM. No commercial operations are planned.

A3.0 Felling of Dead, Diseased and/or Dying Trees: Felling of bark beetle infested or dead and dying trees shall be accomplished by the use of industry recognized methods and safety procedures. Subsequent treatment of the felled tree(s) shall consist of removing the bole wood and chipping or removing the slash. CONTRACTOR shall work cooperatively with the Project Manager (PM) contracted to oversee this project

as well as with the recommendations of a Registered Professional Forester assigned to oversee and approve the tree removal plan.

A4.0 Requirements Prior to and Concurrent with Tree Felling: CONTRACTOR shall comply with all applicable portions of the current California Forest Practice Rules for all operations as applicable to the scope of services herein. This includes, but is not limited to, protecting archeological sites, protecting threatened and endangered species/habitat and watercourse protection.

A5.0 CONTRACTOR Requirements for Tree Felling: Work shall be accomplished in cooperation with the PM as well as through the following steps:

A5.1 CONTRACTOR shall be responsible for the felling of identified trees which may be located in close proximity to any and all property of others including, but not limited to, structures and other improvements.

A5.2 CONTRACTOR shall be responsible to evacuate all individuals not associated with the felling of trees from the area where any tree or part of a tree may fall.

A5.3 CONTRACTOR shall make every effort to move or have the owners move all mobile personal property from the area where a tree or part of a tree may fall.

A5.4 CONTRACTOR shall, by use of tape or cones or other methods approved by the COUNTY Contract Administrator, mark off the area where a tree or part of a tree may fall in a manner sufficient to alert individuals that may come upon the work area during the felling operation.

A5.5 If the tree(s) to be felled are close enough to any roadway, either private or public, such that the tree or part of the tree could fall upon the roadway, CONTRACTOR shall, through the use of flagmen, cones or other means as approved by the PM, safely and effectively block traffic from any risk of being hit by a falling tree or parts of a tree.

A5.6 CONTRACTOR shall limb the felled trees by any of the following means as approved by the PM:

- a) Bucking the felled tree(s) into lengths short enough to allow the CONTRACTOR to move the logs off the property.
- b) Removal of all logs and limb-wood of eight (8) inch or greater diameter to approved locations or destinations within seventy-two (72) hours after cutting.
- c) Chipping or other approved disposal of all materials smaller than eight (8) inch diameter.

A6.0 Specifications for Tree Felling: For all marked trees located on each contracted parcel the CONTRACTOR shall:

- a. Fell marked trees as directed by the PM.
- b. Ensure the maximum residual stump height will be no greater than eight (8) inches above the ground measured on the uphill side, unless otherwise approved by the PM in writing;
- c. Confirm treat stumps are in compliance with labeled directions within four (4) hours of creating the stump with a borax product licensed with the California Department of Pesticide Regulation (DPR) for the use of controlling the spread of annosus root disease. **Under current regulations, only the stumps of trees that were still retaining needles need to be treated. (See Exhibit H, "Annosus Root Disease in California").**
- d. Be responsible to insure property is not damaged, including, but not limited to, septic tanks, leach fields, structures, fencing, vehicles, and other trees outside the drip line of the marked tree.
- e. Be responsible for making any necessary arrangements with utility companies for service drops.
- f. Identify potential trees or other vegetation that may be damaged during the felling or removal operations. Vegetation damaged within the drip line of the felled tree shall be pruned and/or removed and chipped if damaged by the tree felling operation. Pruning of damaged trees shall be to the approved industry standards as outlined by the International Society of Arboriculture (ISA). Substantially damaged trees, as determined by the PM, will be felled and treated to the same specifications as the marked trees on the parcel with no additional compensation to the CONTRACTOR.
- g. Ensure felled trees shall be limbed flush with the bole.
- h. Ensure the bole of the tree and limb wood eight (8) inch diameter or larger shall be bucked into lengths short enough to allow the CONTRACTOR to move it to an approved location immediately after cutting.
- i. Ensure all slash generated by the felling operation, including limb-wood less than eight (8) inch diameter and trees or other vegetation removed due to damage from the felling operation shall be chipped on site or hauled to the approved disposal site. If the slash is chipped and distributed on site, the chips must not be blown or moved onto a

neighboring parcel unless that parcel also belongs to the same property owner from which the slash originated. No chips may be placed within 30 feet of any structure or improvement or any remaining live trees unless approved by the PM in writing. The depth of chipped materials shall not exceed 3 inches.

A7.0 Equipment: CONTRACTOR shall provide all equipment and materials including but not limited to chain saws, climbing equipment, safety equipment, tip lines, brush chippers, plastic sheeting for tarping, loaders, trucks and/or trailers for transportation of logs, slash or chips that must be hauled to the approved removal site and other necessary equipment suitable to complete felling and removal of the infested trees on each parcel. The CONTRACTOR shall provide transportation to and from the job site for his/her equipment, personnel, and all necessary fuel and supplies at his/her expense.

A7.1 Brush Chipper: The brush chipper used by the CONTRACTOR shall be of sufficient size and horsepower to accomplish chipping of up to eight (8) inch diameter material, including tree limbs and brush. All OSHA required safety equipment, shall be in place and operative. Logs, slash and brush may be hauled to the approved grinding facility instead of being chipped on site. If the grinding facility should become unavailable for any reason, the CONTRACTOR must provide this brush chipper with operators at no extra cost to the COUNTY.

A8.0 Qualified Operators - All equipment shall be operated by trained, qualified and experienced operators. All equipment shall be maintained by CONTRACTOR at his/her expense and on his/her own time. CONTRACTOR shall provide all operators with training specific to the equipment being used from the applicable sections of the State and Federal Occupational Health and Safety Codes (OSHA) and may be required to submit documentation of this training. The CONTRACTOR shall prepare a written accident prevention program prior to start of project.

A9.0 Fire Fighting Safety Equipment and Project Activity Levels (PAL); All powered equipment shall be equipped with an approved spark arrestor as required by Public Resources Code (PRC) Section 4442. The CONTRACTOR shall also provide at least one shovel, one 2A-10BC fire extinguisher, and either one approved 2½ gallon pressurized water type fire extinguisher or one water filled 5-gallon bladder bag type fire extinguisher as required by PRC Section 4431. This firefighting equipment must be easily accessible to the equipment operator and kept within 25 feet of the

operation taking place

A9.1 The US Forest Service uses an index (or decision support system) known as Project Activity Levels (PAL) to reduce the risk of CONTRACTOR operations starting a fire. The PAL system also allows for mitigations in some cases to allow work to continue during higher risk periods. The CONTRACTOR will be required to comply with the PAL system and reduce or suspend work done under this Agreement in accordance with the PAL system and the prohibited activities at each level. PAL levels can be obtained by calling the local U.S. Forest Service office. Refer to Exhibit C for the PAL guidelines. Exceptions to compliance with the PAL restrictions must be approved in writing by the PM.

A10.0 Safety Equipment - The CONTRACTOR shall furnish all necessary safety gear as required by the Health and Safety codes for each of his/her employees at the CONTRACTOR's own expense. This equipment includes, but is not limited to, eye protection, hearing protection, hardhat, gloves, and chaps.

A11.0 Flag-persons If required or necessary for any reason, CONTRACTOR shall furnish, at no additional expense to the COUNTY, flag-persons for controlling traffic flow disrupted by any operation conducted by the CONTRACTOR, such as, but not limited to, loading and unloading of equipment, felling of trees and so forth.

A12.0 Work Orders / Tree Removal Contract: CONTRACTOR shall be issued work orders in the form of a Tree Removal Contract (TRC) by the PM containing parcel information, number of trees, property owner's information, cost share and authorizing the CONTRACTOR to fell the marked trees.

A12.1 The work order will identify the exact number of bark beetle infested, dead or dying trees in each price category based on size and difficulty level.

A12.2 The level of difficulty will be according to the Riverside County Fire Tree Assessment Matrix, see Exhibit D for sample. This form is used by the PM only to determine the level of difficulty.

A12.3 Upon commencement of work on a parcel, CONTRACTOR will be deemed to have accepted the compensation proposed on the work order and waives its right to dispute any compensation amount(s).

A12.4 If the CONTRACTOR disagrees with the assessment and intends to dispute it, CONTRACTOR must file their disagreement in writing to the PM, noting the criteria for their disagreement within 48 hours of receiving the work order and prior to commencement of work.

A12.4.1 If PM agrees with the CONTRACTOR, the work order will be amended within 24 hours.

A12.4.2 If PM does not agree with the CONTRACTOR, the PM may cancel the work order and/or return to the property for a second assessment with the CONTRACTOR.

A12.4.3 If no agreement can be reached for the parcel work to be done, the PM may contact the COUNTY Grants Administrator for further direction on how to proceed.

A12.4.4 There will not be an appeal process.

A12.5 Work orders must be accepted in full. CONTRACTOR must accept or reject all of the marked trees on the parcel identified on the work order.

A12.6 CONTRACTOR will not be compensated for tree removal and treatment outside of the scope of the work order(s) and marked by the PM for removal and treatment. Property owner may be entitled to damages for which CONTRACTOR is liable.

A12.7 Work orders will have instructions for entry to properties with locked gates. CONTRACTOR will be responsible for any damages that result from CONTRACTOR's failure to follow entry instructions.

A12.8 CONTRACTOR shall commence performance of requested services upon notification and shall diligently perform such services.

A12.9 Work orders are to be completed within thirty (30) calendar days of acceptance. Extensions must be requested at least five (5) days in advance of the expected completion date on the work order and approved by the PM.

A12.10 In consideration of the neighboring resident(s), work is not to commence before 7:00 AM, nor continue beyond 7:00 PM, and no work will be performed on Sundays.

A12.11 Payment for this project work is 75% COUNTY responsibility and 25% property owner responsibility. The exception is if the property owner qualifies as a low-income individual, then COUNTY will be responsible for 100% of the charges for the work which is done on that parcel for that qualifying property owner. PM will communicate the payment responsibility to CONTRACTOR for all work orders.

A13.0 Safety: CONTRACTOR will at all time take necessary precautions to ensure the protection of the public and their employees and to meet all OSHA and CAL-OSHA requirements. All work performed will comply with appropriate safety regulations of all Federal, State and local regulatory commissions whether such equipment or safety features have been specifically outlined or required in

these specifications or not.

A14.0 Damage: CONTRACTOR shall be responsible for any property damage done to property of others as a result of, or arising from, the CONTRACTOR's activities under the Agreement.

A15.0 Licensing and Requirements:

A15.1 CONTRACTOR is a Licensed Timber Operator in the State of California, license #A167

A15.2 CONTRACTOR has a C-61/D49 Tree Service license #576531 issued by the California State License Board (CSLB).

A15.3 CONTRACTOR and all CONTRACTOR'S personnel assigned to the project must possess and maintain current and valid California Driver's Licenses (Class C or higher) throughout the period of performance of the Agreement.

A15.4 Suspension or revocation of the above license requirements shall result in immediate work stoppage, and potential termination of the Agreement upon written notice by the COUNTY.

A15.5 CONTRACTOR has thorough knowledge of U.S. Forest Practice Rules (Title 14, California code of regulations, chapters 4 and 4.5 with the Z'Berg Nejedley Forest Practice Act, January 1997 (or most current) version.

A15.6 CONTRACTOR has demonstrated experience working with State, Local, and Federal fire codes, standards, ordinances and regulations as they relate to fuel (vegetation) hazard reduction in California.

A16.0 CONTRACTOR'S Identified Disposal Site: B. P. John Hauling Romoland Facility located at 28700 Mathews Road, Romoland CA 92585 Phone: (951) 696-1144

A17.0 Donation of Cut or Chipped Wood: Donations of wood or wood chips will be considered on a case by case basis and at the sole discretion and approval of the COUNTY designated PM, to a confirmed, operating organization with a valid "501, C3" status, local to the area of project performance, with the following parameters in place:

A17.1 The maximum number of donations, regardless of tonnage, will be ten (10)

A17.2 PM is first point of contact for request and will manage the donation of any wood

A17.3 Wood shall not be actively infested/infected, as determined by PM and/or COUNTY authorized personnel

A17.4 Prior approval by PM and COUNTY is required prior to start of felling of tree

A17.5 Only a limited number of wood/wood chips tonnage will be considered for donation

A17.6 Organizations eligible to receive donations must be vetted and approved by the COUNTY. Organizations may only receive as much tonnage as can be stored on the legal property of the organization in accordance with all applicable laws, ordinances, or other guidelines as they apply to storage of wood and/or wood chips.

A17.7 Documentation of any donations must be provided by CONTRACTOR to PM within thirty (30) days of donation date.

**EXHIBIT B
PAYMENT PROVISIONS**

Table B1.0: Rates for DBH Classes with Removal					
DBH Class	1-12"	13-24"	25-36"	37-48"	>49"
Base Rate (Dollars per inch)	\$17.00 / inch	\$26.00 / inch	\$30.00 / inch	\$34.00 / inch	\$40.00 / inch

B1.1 Definitions: DBH is Diameter at Breast Height, a standard method of expressing the diameter of the trunk or bole of a standing tree.

B1.2 Table B1.0 costs will be used when 8” and larger material must be hauled to the identified disposal site.

B1.3 Difficulty Adjustment Factor (DAF) is established for each tree to be removed by the PM. It represents the estimated level of difficulty above that of a tree that can be free-felled in the open woods. Additional compensation will be given to the CONTRACTOR for trees determined to have a greater difficulty than a "low" difficulty rated tree. All Oak species will automatically be assigned a DAF of Very High.

B1.3.1 – DAF Table:

DAF Rating	Allowable Percentage Increase Above Base Rate
Medium	1.375%
High	1.750%
Very High	2.000%

B1.4 Invoices: Invoices for payment will NOT be accepted prior to the PM notifying the CONTRACTOR of the acceptance of the completed work. Acceptance shall be defined as documentation or other agreed upon deliverable presented without errors, stipulations, pending completion data, proof of material disposal (as applicable), or omission of pertinent information which can reasonably be considered as rendering the deliverable as incomplete. Invoice dates must be reflective of the acceptance date by the PM, not the date the work was completed in the field.

B1.5 Applicable disposal fees will be invoiced as a separate line item (not to be included in the “Price Per Acre” calculation) and CONTRACTOR will be reimbursed for the actual disposal fee cost. Weight ticket confirmation of cost must be included with invoice submission as proof of disposal and disposal cost. Invoices submitted without the correct weight ticket will not have disposal fees paid.

**EXHIBIT C
PROJECT ACTIVITY LEVELS (PAL)**

C1.0 Work as required by the Agreement documents.

C2.0 Furnish Fire Patrol. When mechanized equipment with high-speed rotary head is utilized, the Fire Patrol shall remain in the operational area until 8:00 p.m., unless otherwise agreed in writing.

C3.0 The following operations are prohibited from 1:00 p.m. until 8:00 p.m. local time:

- a. Dead tree felling, limbing, or bucking except recently dead trees.
- b. Operating high speed rotary head equipment.
- c. Blasting.
- d. Tractor, skidder, feller-buncher (without high speed rotary head), forwarder, chipper or shovel logging operations.
- e. Cable yarding with gravity operated logging systems employing non-motorized carriages when all blocks and moving lines are 10 feet or more above the ground, excluding the line between the carriage and the choker.
- f. Mechanized loading and hauling, except log trucks already at the landing.
- g. Hand felling green or recently dead material.
- h. Power saw use at landings.
- i. Welding or cutting of metal except by special permit.
- j. Any other spark-emitting operation except by special permit.

C4.0 The following additional operations are prohibited:

- a. Blasting between hours of 10 a.m. and 8 p.m.
- b. Cable yarding except as stated above.
- c. Mechanized operations for felling (with high speed rotary head), bucking, and limbing.
- d. Felling dead material.
- e. Road clearing and pioneering in un-cleared areas.
- f. Mechanized slash disposal.

- C5.0** Operations are prohibited except as provided for below:
- a. Trucks at landing may be loaded and can leave area.
 - b. Equipment at landings may be serviced.
 - c. Roads: dust abatement or rock/aggregate installation

C6.0 Prohibited Operations.

- a. The CONTRACTOR shall conform to the limitations or requirements of the Project Activity Level (PAL) obtained from the Forest Service or provided by Riverside County Fire (RVC) before starting work each day. As practicable, the predicted activity levels shall be obtained from the Forest Service and utilized to plan and determine the following day's activity levels by 4:00 pm each afternoon. If the PAL is not available from the Forest Service, RVC will be responsible to provide this information to the CONTRACTOR. The activity level may be changed at any time if, in the judgment of RVC the fire danger is higher or lower than predicted. The decision to change the activity level and when to change the activity level are within the discretion of RVC.
- b. The fire hazard conditions are expected to be high during the duration of the project. The contractor shall comply with all rules pertaining to fire protection outlined in the California Public Resources Code 4428. The contractor shall have on site the following Fire Tools or Equipment for each personnel vehicle, tractor or other heavy equipment on site:
 - i. One (1) ax or Pulaski with a 36-inch handle.
 - ii. One (1) round point shovel (length to be not less than 46 inches).
 - iii. One (1) fully charged fire extinguisher U. L. rated at 2-A:10- BC.
- c. The CONTRACTOR shall have on site a sealed fire box. This sealed fire box will contain a 5-gallon water-filled backpack pump, two axes or two Pulaski with a 36 inch handles, two McLeod fire tools and a sufficient number of shovels for each employee at project site. A shovel or fire extinguisher must be kept within 25 feet from each chain saw when used off cleared landing areas. Fire extinguishers shall be of the type and size set forth in the California Public Resources Code Section 4431. Internal combustions engines shall be equipped with spark arresters or mufflers per California Public Resources Code Section 4442.

In order to provide additional fire protection and to allow the CONTRACTOR to work when the PAL level would otherwise require a reduction in or a shutdown of the CONTRACTOR operations, additional fire precautions and equipment may be required by the CONTRACTOR. Prior to suspending work, RVC will work with the CONTRACTOR on ways to mitigate the hazard through the use of additional on-site firefighting equipment and personnel beyond the existing contract requirements. PAL applicable to this project shall be for Fuel Model G, National Fire Danger Rating System, and Remote Automated Weather Station (RAWS).

- d. When the PAL level is B and if mechanized equipment with high-speed rotary head is utilized, the contractor shall furnish a fire patrol consisting of one person with a filled 5 gallon backpack pump and a shovel or McLeod. The fire patrol person's sole duty and responsibility shall be to prevent, detect, and suppress any fire at the work location. The fire patrol person shall perform continuous re-inspection of the day's previously treated area and shall be responsible to see that the local fire department assistance is requested immediately upon discovery of a fire.
- e. When the PAL level is C and if the conditions outlined below are complied with the contractor may perform dead tree felling, limbing, bucking and use mechanized equipment with high-speed rotary head between the hours of 1 pm and 8 pm.
- f. The CONTRACTOR shall furnish a fire patrol for each location (within 100 feet) where dead tree felling, limbing, bucking, and disposal or brush removal is occurring. The fire patrol person shall have a shovel or McLeod in addition to a filled 5-gallon backpack pump. The fire patrol person's sole duty and responsibility shall be to prevent, detect, and suppress any fire at the work location. The fire patrol person shall perform continuous re-inspection of the day's previously treated area and shall be responsible to see that the local fire department assistance is requested immediately upon discovery of a fire.
- g. The CONTRACTOR shall furnish a ready to use portable water tank truck or trailer. The water tank truck or trailer shall meet the following minimum specifications: contain at least 300 gallons of water; a combination straight stream-fog nozzle with 300 feet of on 1-inch fire hose,

with no segment longer than 50 feet; fire hose with nozzle closed shall be capable of withstanding 200 psi pump pressure without leaking, slipping of couplings, distortions, or other failures; nozzle discharge rating of 6 to 20 gallons per minute; a pump capable of delivering a minimum of 23 gallons per minute at 145 to 175 psi at sea level; power unit for pump shall have fuel for at least two hours operation, with ample transport available for immediate and safe movement of tank over roads serving the contract area; and shall be in good working order; pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. The water tank truck or trailer shall be either self-propelled or able to be towed by a rubber-tired skidder, a 4x4 rubber-tired farm truck tractor, or a crawler tractor. If not self-propelled, the towing equipment shall be capable of towing the water tank truck or trailer to the area where needed. The towing tractor and portable water tank truck or trailer shall be conveniently located to the work areas and staged within the work area limits.

- h. The CONTRACTOR shall develop a notification and delivery system such that if a fire occurs, the water tank truck or trailer can be quickly and efficiently mobilized to the fire site and effectively operated to suppress the fire.
- i. In the event a water tank truck or trailer is not immediately available, the CONTRACTOR shall provide a portable (off road) compressed air foam dispensing (CAD), Class A fire suppression system as an acceptable substitute. All other additional emergency fire precautions shall apply. The CAD system shall meet the following minimum requirements:
1. 30-gallon capacity with 20:1 expansion ratio
 2. 100 feet of 1-inch hose.
 3. Horizontal range of 50 feet.
 4. 100 psi nozzle.
 5. 5 minutes sustained use.
- j. When the PAL level is D and if the conditions outlined below are complied with, the CONTRACTOR will perform: dead tree felling, limbing, bucking, chipping, cable

- yarding, mechanized slash disposal, shovel logging operations, and use mechanized equipment with high- speed rotary head between the hours of 1 pm and 8 pm.
- k. The CONTRACTOR shall furnish a fire patrol person as described above for Level C for dead tree felling limbing, bucking and disposal and a safe distance behind each piece of subject equipment for other operations described above under Level D. One fire patrol person may oversee more than one operation if he or she is within 100 feet and in plain view of each operation. The fire patrol person's sole duty and responsibility shall be to prevent, detect, and suppress any fire at the work location. The fire patrol person shall perform continuous re-inspection of the day's previously treated area and shall be responsible to see that the local fire department assistance is requested immediately upon discovery of a fire.
- l. The CONTRACTOR shall furnish a ready to use portable water tank truck or trailer. The water tank truck or trailer shall meet the following minimum specifications: contain at least 300 gallons of water; a combination straight stream-fog nozzle with 300 feet of one-inch fire hose, with no segment longer than 50 feet; fire hose with nozzle closed shall be capable of withstanding 200 psi pump pressure without leaking, slipping of couplings, distortions, or other failures; nozzle discharge rating of six to 20 gallons per minute; a pump capable of delivering a minimum of 23 gallons per minute at 145 to 175 psi at sea level; power unit for pump shall have fuel for at least two hours operation, with ample transport available for immediate and safe movement of tank over roads serving the contract area; and shall be in good working order; pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. The water tank truck or trailer shall be either self-propelled or able to be towed by a rubber-tired skidder, a 4x4 rubber-tired farm truck tractor, or a crawler tractor. If not self-propelled, the towing equipment shall be capable of towing the water tank truck or trailer to the area where needed. The towing tractor and portable water tank truck or trailer shall be immediately available and conveniently located within ¼ mile (or closer if specified) of each operation or piece of subject equipment described above under level m. The CONTRACTOR shall develop a notification and delivery system such that if a fire occurs, the water tank truck or trailer can be quickly and efficiently mobilized to the fire site and effectively operated to suppress the fire.

m. In the event a water tank truck or trailer is not immediately available, the CONTRACTOR shall provide a portable (off road) compressed air foam dispensing (CAD), Class A fire suppression system as an acceptable substitute. All other additional emergency fire precautions shall apply. The CAD system shall meet the following minimum requirements:

1. 30-gallon capacity with 20:1 expansion ratio.
2. 100 feet of 1-inch hose.
3. Horizontal range of 50 feet.
4. 100 psi nozzle.
5. 5 minutes sustained use.

- n. When the PAL level is E operations are allowed between daylight and 8 pm, provided the CONTRACTOR meets the same fire precautions restrictions and requirements as at level D; however, no steel tracked-mounted equipment shall be operated.
- o. When the PAL Level is E the CONTRACTOR will service equipment at landings, engage in dust abatement, load trucks at landings and leave work area; however, the CONTRACTOR must meet the same fire precautions restrictions and requirements as at level D.

**EXHIBIT D
TREE MATRIX FORM**

Service Call					Tree Inspection										
Name					Tree No	1	2	3	4	5	6	7	8	9	10
Address					Species										
APN					DBH										
Phone					Height										
Inspection Date					Con/SCE										
Inspector					Reimburse										
					Other?										
#	Description	Low	Moderate	High	Extreme										
1	DBH	0-12" 1	13-24" 2	25-48" 3	49+ 4										
2	Height	0-50 1	50-100 2	100-125 3	125+ 4										
3	Distance to Structure	20+ feet 1	10-20 feet 2	3-10 feet 3	0-5 feet 4										
4	Integrity	Straight 1	Minor Lean 2	Major Lean 3	Decay/Defect 4										
5	Branch Size	0-1" 1	1-3" 2	3-6" 3	6+ " 4										
6	Branch Overhanging	No Overhang 1	1/4 or less 2	1/4 - 1/2 3	1/2 + 4										
7	Branch Integrity	Live 1	1/4 Dead 2	1/2 Dead 3	All Dead/West 4										
8	Falling Area	Clear Area 1	Minor Hazards 2	Moderate Hazards 3	Major Hazards 4										
9	Technical Felling	Free Felling 1	Climbing and Free Dropping 2	Climbing - No Free Dropping 3	Crane or Heavy Equipment 4										
10	Access/Debris Clean Up	Easy Access-Short Haul 1	Minor Access and Haul 2	Moderate Access and Haul 3	No Access and Long Haul 4										
11	Time Commitment	1/4 Day 1	1/4 - 1/2 Day 2	1 Day 3	1+ Day 4										
General Comments					Total Score										

**EXHIBIT E
ADDITIONAL TERMS AND CONDITIONS**

CONTRACTOR shall agree to the same terms and conditions as indicated below for Grantee (COUNTY), consistent with the Grant Agreement # 5GG17196 between the County and the State of California.

1) Hold Harmless

a. GRANTEE shall defend, indemnify and hold the STATE, its officers, employees, and agents harmless from and against any and all liability, loss, expense (including reasonable attorney's fees), or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent such liability, loss, expense, attorney's fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of GRANTEE, its officers, agents, or employees. The duty of GRANTEE to indemnify and hold harmless includes the duty to defend as set forth in Civil Code Section 2778. This Agreement supersedes GRANTEE's right as a public entity to indemnity (see Government Code Section 895.2) and contribution (see Government Code Section 895.6) as set forth in Government Code Section 895.4.

b. GRANTEE waives any and all rights to any type of express or implied indemnity or right of contribution from the STATE, its officers, agents, or employees for any liability resulting from, growing out of, or in any way connected with or incident to this Agreement.

c. Nothing in this Agreement is intended to create in the public or in any member of it rights as a third-party beneficiary under this Agreement.

2) Tort Claims;

a. FEDERAL: The United States shall be liable, to the extent allowed by the Federal Tort Claims Act 28 United States Code 2671-2680, for claims of personal injuries or property damage resulting from the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his or her employment, arising out of this Agreement.

b. STATE: The State of California shall be liable, to the extent allowed by law and subject to California Government Code, Title 1, Division 3.6, providing for the filing of tort claims against the State of California, for personal injuries or property damage resulting from the negligent or wrongful act or omission of State of California employees while acting within the scope of his or her employment, arising out of this Agreement.

3) Nondiscrimination; The State of California prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, sex, marital status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. GRANTEE shall not discriminate against any person on any of these bases.

4) Incorporation; The grant guidelines and the Project Scope of Work, Project Budget Detail and any subsequent amendments or modifications to the Project Scope of Work and Project Budget Detail approved in writing by the STATE are hereby incorporated by reference into this Agreement as though set forth in full in this Agreement.

5) Severability; If any provision of this Agreement or the Project Scope of Work thereof is held invalid, that invalidity shall not affect other provisions or applications of this Agreement which can be given effect without the invalid provision or application, and to this end the provisions of this Agreement are severable.

6) Waiver; No term or provision hereof will be considered waived by either party, and no breach excused by either party, unless such waiver or consent is in writing and signed on behalf of the party against whom the waiver is asserted. No consent by either party to, or waiver of, a breach by either party, whether expressed or implied, will constitute consent to, waiver of, or excuse of any other, different, or subsequent breach by either party.

EXHIBIT F AREA MAP

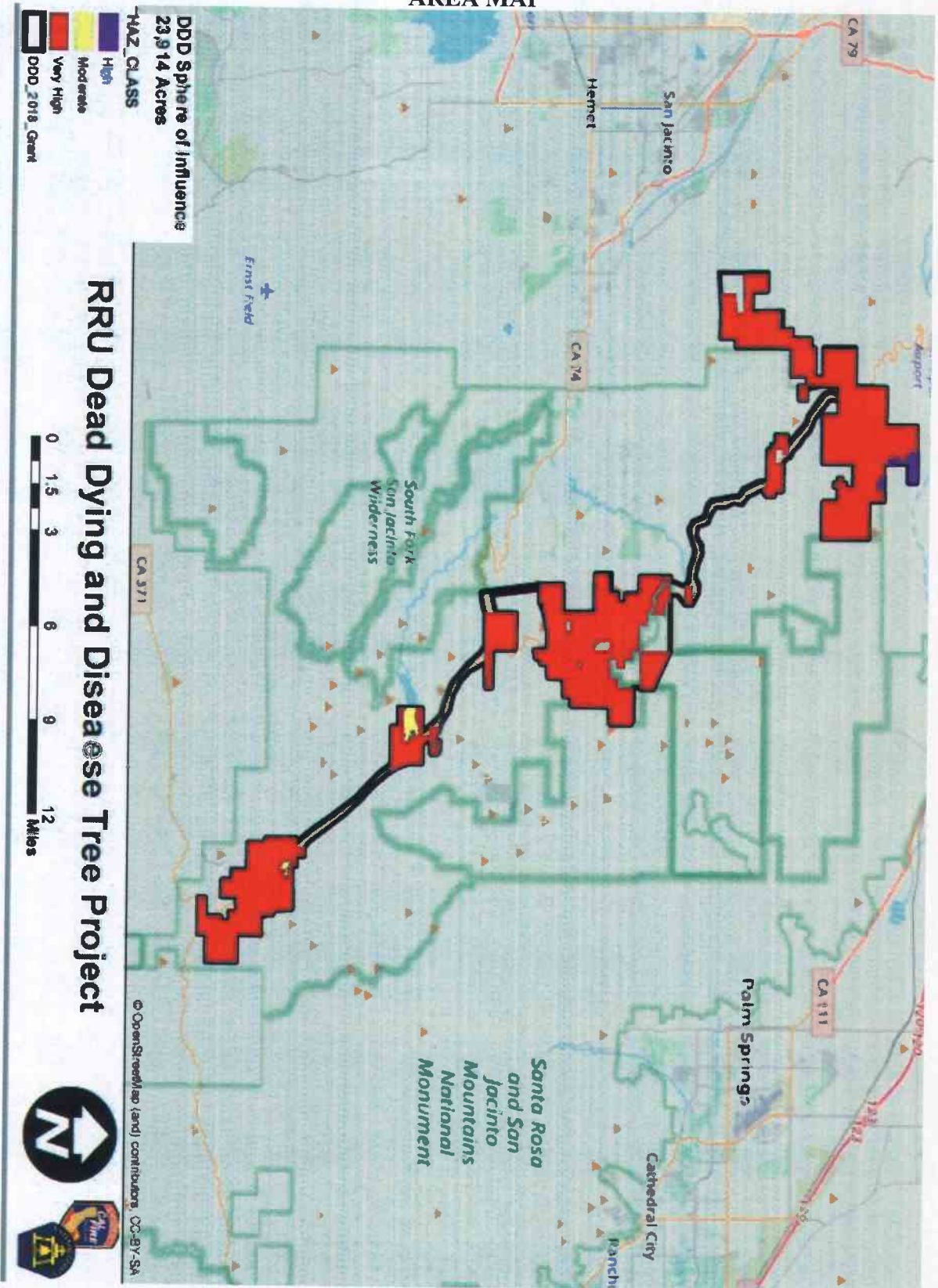



EXHIBIT G
CONTROLLING BARK BEETLES



CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION


Pete Wilson
Governor
State of California

TREE NOTES

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Richard A. Wilson
Director

Douglas Wheeler
Secretary for Resources
The Resources Agency



NUMBER: 3 July 1996

Controlling Bark Beetles in Wood Residue and Firewood

Sherburn R. Sanborn

Forester, Resource Management, P.O. Box 670, Santa Rosa, CA 95403-0670
Revised 1996 by Donald R. Owen, Forest Pest Specialist, 6105 Airport Rd., Redding, CA 96002.

Each year, timber losses in California forests due to bark beetle attack exceed those caused by wildland fire. Drought conditions worsen this situation. It was estimated that 10 million trees were killed throughout the state in 1989 and 1990 alone, destroying enough timber to build one million three bedroom homes.

Many valuable urban landscape trees are also killed due to drought stress and bark beetle attack. In some urban areas of Southern California, pines are frequently killed by bark beetles transported in infested firewood obtained from dead and dying trees in the Southern Sierra Nevada (personal communication, Eric Oldar, CDF Service Forester). Firewood may harbor immature beetles (larvae) which complete their development, emerge, attack and kill nearby pines in the urban landscape. This problem may be occurring in other areas as well.

This article discusses several techniques that may be used by both forest landowners and urban dwellers to reduce tree mortality by reducing local bark beetle breeding sites. An important first step before applying any of the following techniques is to determine if a potential bark beetle problem exists. Next, identify the species of bark beetle infesting the wood as well as the species of tree (host) infested. Because host preference and life cycle are so variable among different species of bark beetles, reducing tree mortality may depend on the proper selection and timing of control techniques. Because these techniques are preventative in nature, their use may be justified even where bark beetle problems do not exist. This is particularly true where high value trees, such as those in parks or residential areas, are at risk.

Firewood Pests and Regulations

Wood from tree removals, salvage logging, and forest thinning is often used for firewood. The freshly cut wood of many trees can attract bark beetles which can breed in it, while the wood of trees killed by bark beetles may harbor developing brood. Trees of particular importance are pine, true fir, Douglas-fir, elm and eucalyptus. Whenever wood is moved, there is a risk that associated insect and/or disease pathogens are moved as well. This can result in the introduction of new pests or exacerbate existing pest problems. Some bark beetle species become so numerous during periods of drought that they will mass attack and kill healthy trees.

Pine pitch canker is an incurable tree disease that has killed thousands of Monterey pines and other pines in the state. Bark beetles and other insects help move the disease around. Pine logs, firewood, branches, needles, and cones may all be a source of the disease. This material should not be transported from one part of the state to another unless you are sure it is disease-free. Contact your local Agricultural Commissioner's office or California Department of Forestry and Fire Protection forester to determine if you are in a pitch canker infested area.

Elm wood is of particular concern because the European elm bark beetle which breeds in it vectors the Dutch Elm Disease (DED) fungus. The spread of DED over long distances has invariably been due to the movement of elm firewood from infested areas.

The eucalyptus longhorned borer (ELHB), a native of Australia, was introduced into Southern California in 1984. Since then, it has spread to a number of locations in the state. Many mature eucalyptus trees have been killed in areas where this insect has become well established. The movement of eucalyptus wood has become an increasing problem because ELHB and other introduced insects can be carried great distances in firewood. The transport of ELHB infested wood is prohibited under section 4714.5 of the Public Resources Code.

Firewood Tarping

Tarping and sealing wood piles with clear plastic is a very effective way to prevent the emergence of beetles from the wood. This technique will also prevent them from colonizing freshly cut uninfested wood. To properly tarp a wood pile you will need the following materials: Six mil clear plastic sheeting of a size sufficient to cover your wood pile. This material is available in various sizes at most hardware supply stores. If available, six mil ultra-

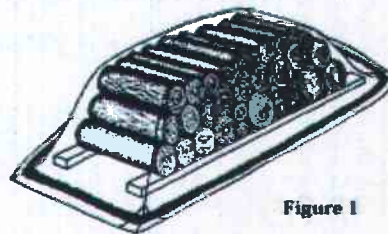


Figure 1

violet (UV) resistant plastic sheeting such as CIL Durafilm Polyethylene Greenhouse film is excellent. Do not use black plastic because beetles are attracted to areas that are lighter

in color and they chew through it.

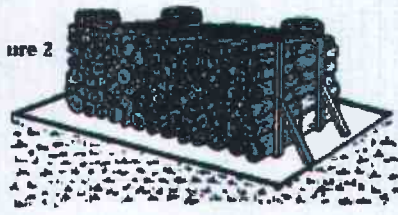
- » Lumber such as 2X4's to use as runners to keep the wood off the ground.
- » An old tarpaulin, carpet, cardboard, automobile tires or similar material to protect the plastic from tearing.
- » Soil, gravel or other material to seal the plastic along the ground.

Figures 1 & 2 are examples of how to stack the wood. Use these examples and the following procedures to tarp it:

1. The wood stack can be any size provided it can be covered by a single sheet of plastic that will allow for 12 inches of overlap along the ground.
2. To aid in drying, keep the wood off the ground by stacking it on 2X4 runners. Placing the stack in partial sunlight will reduce

drying time, minimize the breakdown of non-UV resistant plastic and render the wood unsuitable for beetle breeding.

3. Prior to covering the stack, make sure there are no sharp projections which could pierce the plastic. Place a tarpaulin, cardboard, automobile tires (see diagrams) or similar material over the top of the stack to protect the plastic.
4. Cover the stack with plastic allowing 12 inches of material to overlap along the ground (see diagram).
5. Seal overlap against the ground with soil, gravel or similar material. Tarp must be sealed entirely around the stack.
6. After sealing, the plastic may become tightly stretched over the wood stack. If this occurs, gently pull up on the plastic allowing 2-3 inches of slack to relieve strain. This will reduce punctures and tears. If the plastic is held too firmly against the bark, tarpaulin, cardboard or other materials, beetles will get between that material and the plastic and escape by chewing their way out. This would necessitate retarpling the wood.



6. After sealing, the plastic may become tightly stretched over the wood stack. If this occurs, gently pull up on the plastic allowing 2-3 inches of slack to relieve strain. This will reduce punctures and tears. If the plastic is held too firmly against the bark, tarpaulin, cardboard or other materials, beetles will get between that material and the plastic and escape by chewing their way out. This would necessitate retarpling the wood.

7. Inspect tarping frequently for damage. Repair small holes and tears with duct tape. Larger tears may require retarpling.

Wood should be tarped for one season after cutting, from April 1 until November 1. Firewood seasoned in this manner through one spring and summer will not support beetle colonization. Any beetle brood present in the wood when it is tarped will be killed. Wood that is tarped dries more rapidly, particularly during the winter.

Slash Treatment

Slash is woody material generally consisting of branches and tops of trees left behind after commercial logging or thinning operations. Those materials with bark still attached may become a breeding site for bark beetles and can lead to a bark beetle population buildup. There are several techniques which can be used to render this material unsuitable for beetle breeding.

Lop and scatter involves 1) severing branches from bolts 3 inches or larger in diameter, and 2) scattering the branches and bolts so that they receive maximum exposure to the sun. This technique is recommended where pine trees are being logged or thinned particularly when beetles of the genus *Ips* are already abundant. Heat from the sun increases the temperature under the bark and hastens drying. Both heat exposure and drying can greatly reduce the breeding success of bark beetles. To be effective, lop and scatter slash within one week of slash creation. As an alternative, avoid activities in pine stands that will place "green" slash on the ground from February through June.

To be effective, the remaining techniques must be completed within five weeks of slash creation or before beetle broods emerge:

Piling and burning is another effective technique which will render the slash unsuitable for beetle colonization or will kill beetles infesting the slash. This may be a very cost effective approach in rural areas where burn permits (LE-7) can be obtained through CDF.

Chipping is a very effective way of reducing bark beetle population buildup in logging slash and wood residue from pruning,

thinning or tree removal in urban areas. Chipping destroys most beetle brood present in the wood while leaving chips that are unsuitable for bark beetle breeding. Many tree services have chippers that can chip wood up to 12 inches in diameter. Whole-tree chippers are also available for biomass production.

Debarking logs, or bark removal, destroys the habitat where bark beetles breed and their larvae feed. Once removed, the bark and the wood are unsuitable for bark beetle breeding. The wood can then be left on site or used for firewood without concern. Wood that is still green or freshly cut is easier to debark than dry or seasoned wood. There are various devices available that can speed the process. They range from steel bars and chain saw attachments to commercial log debarking machines.

Chemical Control

Controlling bark beetle infestations through the application of pesticides have demonstrated varying levels of success. On commercial forest land, insecticides are costly and difficult to apply on a large scale. They can also disrupt the effect of natural enemies, and their effectiveness in controlling beetle outbreaks has been variable. In the urbanizing forest, it is possible to manage bark beetle-caused mortality with insecticide application as a temporary prevention measure or to reduce pocket killing. However, this should be considered a short term remedy used in conjunction with long term practices that improve the growing conditions for the tree.

Conclusion


Whichever technique(s) you choose, be sure to investigate the legal requirements pertinent to your activities. If you are involved in timber harvesting, insure that you are in compliance with the California Forest Practice Rules. The Registered Professional Forester (RPF) or Licensed Timber Operator (LTO) responsible for the timber harvest plan will be aware of current rules. If you plan to burn woody material, you will need a burn permit from the California Department of Forestry and Fire Protection (CDF) or other local agency. There are many communities that have ordinances restricting the removal of trees.

Further Reading

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- 1990 The fir engraver beetle. *Tree Note* #10.
- 1991 The western pine beetle. *Tree Note* #13.
- Sanborn, Sherburn R. 1989. The Eucalyptus longhorned borer in California. *Tree Note* #4.
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- Svihra, Pavel. 1987. Suitability of elm firewood to bark beetle attack stored under polyethylene sheeting. *J. Arboric.* 13(6):164-166.

Jesse Rios : Editor, Design and Layout
CDF Forest Pest Management (916) 653-9476

EXHIBIT H
ANNOSUS ROOT DISEASE



CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION


Arnold Schwarzenegger
Governor
State of California

TREE NOTES

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Dale T. Geldert
Director

Mike Chrisman
Secretary for Resources
The Resources Agency



NUMBER: 6 October 2004 (first revision)

Annosus Root Disease in California

David Adams

Forest Pathologist, CDF retired, Davis, CA

What Is Annosus Root Disease

Annosus root disease, caused by the fungus *Heterobasidion annosum*, lives in the butt and roots of commercially important forest trees. The fungus is a facultative parasite; that is, it lives primarily as a saprophyte, but is capable of attacking the living tissue of host trees. The maximum life span of *H. annosum* in a coniferous root system is difficult to estimate, but various reports have indicated that it may reach 60-80 years and is usually much less on small root systems. Other root decay fungi such as *Armillaria* sp., while not as efficient as *H. annosum* in colonizing freshly cut woody substrate, may live much longer in the roots of host trees. However, *armillaria* is a very different fungus and has other mechanisms for long term survival.

Heterobasidion annosum causes a root rot in most pines, and a butt rot in true firs. Root-rotted trees may be killed within several to many years after infection, while butt-rotted trees like the non-resinous true firs, may be subjected to extensive butt decay and eventual wind throw.

Susceptible Plants

Annosus root disease is found throughout the north temperate regions of the world and is known primarily as a root disease of conifers. This highly destructive disease is found on many conifers and several hardwoods in California. The most seriously affected, commercially important conifers in California, are those of true fir (*Abies*) and pine (*Pinus*). Other coniferous hosts affected in California are hemlock (*Tsuga*), Douglas-fir (*Pseudotsuga*), larch (*Larix*), spruce (*Picea*), coast redwood (*Sequoia*), sierra redwood (*Sequoiadendron*), incense-cedar (*Calocedrus*), and juniper (*Juniperus*). Madrone (*Arbutus menziesii*), red alder (*Alnus rubra*), California live oak (*Quercus agrifolia*) and two hardwood shrubs, manzanita (*Arctostaphylos* sp.) and sagebrush (*Artemisia* sp.), have also been found infected.

What's In A Name

For many years annosus root disease had the scientific name of *Fomes annosus*. Recently the name was changed to *Heterobasidion annosum*. The perfect (sexual) scientific name has been changed several times since the fungus was first described in 1821 by Elias Fries, a Swedish mycologist. These name changes have occurred as newer taxonomic criteria have been developed by researchers, and as genetic relationships

between wood decay fungi have become clearer. Originally the fungus was called *Polyporus annosus* and in 1885 changed to *Fomes annosus*. Later, the fungus was renamed *Fomitopsis annosa*, but this name was not accepted by other mycologists and was eventually rejected in favor of the present name. This fungus has been called *Tametes radiciperda* in Europe, and also *Ungulina annosa*. A unique feature of the fungus is the presence of an imperfect (asexual) growth form, formerly called *Oedocephalum lineatum* now *Spiniger meineckellus*. This microfungial form of *H. annosum* can occasionally be spotted in the forest on actively decaying stump wood or roots and in the laboratory after a few days on fresh-collected woody tissue, but unlike the conks of the sexual stage it takes a hand lens to see it.

Spores, Disease Spread & Infection

Spore production can occur any time during the year, but most spores are produced during the moist period of late fall. Both basidiospores (sexual) and conidia (asexual) spores of *H. annosum* are known to initiate colonization of stumps, butt wounds and roots. Viable spores have been collected in soil up to 36" deep, in particle collectors from high-flying aircraft and from ships at sea. It is thought that spores washing through the soil may account for root infections in stands that have no disease or harvesting history. Fungal growth through soil or litter is not known.

Disease spread can occur locally and over long distances by airborne spores, and through root contact or grafts between infected and healthy trees. Successful infection can occur when spores germinate on a freshly cut, moist surface that is not immediately subjected to drying periods or heat. The fungus may then grow into the butt and roots and attack nearby trees through root grafts and touching roots. Thinned stands are especially vulnerable to annosus attack through stump infection and root-to-root spread. Rate of spread along roots has been reported to range between 0.5-2.1 m/yr.

Stand & Host Appearance, Conks & Decay

Annosus root disease centers enlarge by root-to-root contact, and are often characterized by groupings of dead (interior) and dying (outer) trees surrounding an infected stump. This characterization may be masked by bark beetle attack of stressed trees within and outside of the infection center. However, root disease centers are identified by the characteristics of long term stand effects vs. the usually short term bark beetle outbreaks.

Host appearance often gives visual clues as a sign of root problems. Pines, incense-cedar, and true fir foliar crowns will begin to show signs of stress as roots become invaded and killed. As infection severity increases, foliar crowns tend to become chlorotic, thin and rounded, and appear to "die from the bottom up." Resin-soaking of roots is common in infected pine. Black stain root disease (*Ceratocystis wagneri*) and armillaria root rot (*Armillaria* sp.) may also be found associated with dead and dying pine and must be considered in any annosus root disease diagnosis.

Conks, when present, are usually found at the base of stumps and on roots of pine and may be found internally in fir stumps. Presence of conks is strongly dependent upon consistency of available moisture; as moisture becomes limiting, conks become harder to find. Conks may even be several or more feet deep on roots, or well inside the stump itself.

Decay by this white rot fungus is highly variable depending upon the host species and decay conditions. The earliest sign of infection is an abnormal coloration of affected wood, usually bluish to purple to reddish. Later small elongate white decay pockets, often with tiny black flecks, appear in these discolored areas. In advanced decay the white pockets coalesce leading to a white stringy, delaminated mass of decayed wood.

Identifying Annosus Root Disease

Field identification of *H. annosum* is made by finding conks of the fungus. A delaminating white rot associated with decay caused by this fungus is usually also present. Conks can be of any size from small (popcorn conks) to large (to 8-10 in.). Mature conks are generally shelf-like with a smooth to irregular outline, although on some surfaces the shelf may be much reduced. Conks are poroid on the lower surface; the pore surface is white to yellowish, often appearing to have a golden sheen when held properly to the light. The pores are very small, about 2-3 to occasionally 4 pores per mm. The conk upper surface is tough and corky, and is of various shades of light to dark brown. Resin production may be associated with infections of resinous tree species. Laboratory identification is based on conk and basidiospore characteristics, or finding the asexual Spiniger form on artificial media or on infested wood chips held under high humidity.

Control of Annosus Root Disease

Chemical treatment of the freshly cut stump surface with Sporax® (sodium tetraborate decahydrate, EPA Reg. No. 2935-501) to prevent stump surface colonization is used in California and elsewhere. Sporax® acts as a toxin after leaching into the top several inches of freshly cut stumps and remains effective for several years. It has no eradication effect on established infections. Recommended guidelines for use of Sporax® with pine in California call for a light application completely covering the stump surface within several hours of tree felling on stumps larger than 8 in. True fir stumps are usually not treated because annosus root disease is often already well established in roots of this host. Sporax® is a registered pesticide and all laws applicable to pesticide use must be followed.

Several factors could render field use of Sporax® less effective. Application of Sporax® to a stump surface during heavy rain could wash off the chemical before it has had time to penetrate and impart fungal toxicity to the stump. Untreated wounds on the stump below the treated area are still possible infection courts as are roots below the soil surface. Sporax® use is more effective in younger stands than in older stands, because trees of younger stands are less likely to have *H. annosum* already on their roots.

Biological control through application of saprophytes or weak pathogens to the stump surface has been practiced in Europe and in the southeastern states. One such fungus that has been used in the United States is *Phlebia (Peniophora) gigantea*, a vigorous competitor. Spores and mycelial fragments are applied to the freshly cut stump surface to protect against spore-generated colonization of the stumps by *H. annosum*.

A source of silvicultural control may come from knowledge of the kind(s) of *H. annosum* colonies present in the stand of concern. There are at least two non-compatible groups known within *H. annosum*: S and P. The letters stand for the tree genera, spruce and pine, from which they were first identified. This means that within the fungal species, there are two known groups that are reproductively and genetically different and may behave differently as pathogens toward the same hosts. In short, P group members seem more likely to attack pine and other tree genera, while S group members seem more restricted to spruce and true fir. This is a very complex area of active study by researchers in both Europe and the U.S., which hopefully will lead to a better understanding of annosus root disease and disease control recommendations.

Present silvicultural control methods within pine stands includes protecting residual trees from annosus root disease by treating freshly cut stumps with Sporax®. With true fir it is best to encourage maximum stand vigor to attempt to keep root growth ahead of root decay. Prescribed burns, stump removal, soil fumigation, and non-host hardwood planting on infested sites are other control methods that have been used successfully.

The oak root fungus (*Armillaria mellea*) is often associated with annosus root disease. Workers in British Columbia found that *A. mellea* may already be present on the roots of recently felled Douglas-fir and western hemlock, rapidly colonizing the roots to the exclusion of *H. annosum*. Thus the oak root fungus, which is usually looked upon as a harmful pathogen may at times play a beneficial role in the forest ecosystem.

Further Reading

Proceedings of the Symposium on Research and Management of Annosus Root Disease (Heterobasidion annosum) in Western North America. USDA Forest Service, Pacific Southwest Forest and Range Experiment Station. General Technical Report PSW-116. April 18-21, 1989, Monterey, CA.