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File Code: 3420
Route To: Steve Funk

Date: November 30, 2000

Subject: Evaluation of Port-Orford-cedar root disease risk in the Clear Creek LSR Fire Recovery Area (FPM Report N01-02)

To: District Ranger, SMMU

On April 29, 2000, Pete Angwin and Dave Schultz from the Redding Forest Pest Management office visited the Clear Creek Late Successional Reserve Fire Recovery Area. We were accompanied by Steve Funk. Approximately 3,510 acres of the LSR burned during the High Complex lightning fires of 1999. The Shasta-McCloud Management Unit is proposing recovery actions on about 32% of the burned area, and approximately 1.2% of the non-burned area. Concern has been raised regarding the potential for introduction of the Port-Orford-cedar root disease fungus (*Phytophthora lateralis*) during the recovery efforts. While the fungus is not currently present in the proposed fire recovery area, recent introductions into the Sacramento River drainage at Dunsmuir and near Interstate 5 near Conant Road have highlighted the need to use proper precautions along all tributaries to the Sacramento River. Broad-scale assessment maps of the area indicate that Port-Orford-cedar (POC) is not present in the recovery area, and thus the risk of disease introduction is zero. However, because Dave Schultz and Pete Angwin had noted small pockets of POC during previous visits to the area, further investigation was warranted.

Port-Orford-cedar root disease is spread to new areas by the water and soil-borne spores of *P. lateralis*. A major cause of long-distance disease spread is the transport of infested soil by vehicles and heavy equipment. If the fungus becomes established in a nearby POC host, new spores will be produced and the disease can spread throughout the drainage below. Almost all new root disease introductions observed to date have started on POC that are directly adjacent to roads or are in areas where machinery has deposited infested soil. Several measures have been shown to effectively reduce the potential for disease spread, including:

- Limiting entry of vehicles and equipment to the dry season (generally June 1 to October 1).
- Washing all vehicles and equipment with a high-pressure hose to remove visible soil before entering areas with POC.
- Removing all POC within 25-feet of roads, and within 50-feet down from the road at stream and drainage crossings.
- Improving road surfaces and water drainage from roads to reduce the presence of standing water that can wash infested mud off of vehicles.

Because the potential for disease introduction is greatest where POC is present within 25-feet of roads (and 50-feet below stream crossings) and where heavy machinery is likely to enter, we looked for POC in areas near roads and where stand treatment activities are proposed. We looked along FS Road 36N20 from Interstate 5 to beyond the proposed treatment areas, along spur roads 36N20A, 36N20B, 36N20C, and along the two spur roads that lead to two water intakes at Slate Creek and the South Fork of Slate Creek for a hydroelectric power station. We also walked along the South Fork of Slate Creek from below the power station to where it joins Slate Creek and up the small stream that crosses spur road 36N20A. Particular care was taken to look for POC where streams and watercourses cross roads that will be used during the proposed recovery operations.

POC was found in five areas (see attached map). The POC in these areas ranged from a few isolated trees to narrow “stringers” of scattered POC along streams or ditches. In two of these areas (above and below the crossing of Slate Creek and FS Road 36N20), the POC was over 50 feet from the road, which is too far to pose a significant risk of infection from mud that may be dropped on the road. Two other areas with POC (near the spur road to the hydroelectric water intake along Slate Creek and beyond the landing at the end of spur road 36N20B) are not in



proposed treatment areas or along haul roads out of the recovery area. Only one area poses a significant potential risk of introduction of POC root disease during fire recovery activities. This is where the small stream crosses spur road 36N20A, which leads to proposed treatment area S-10. In this area, POC was found immediately adjacent to the road at the stream intersection. Additional POC was also found along the stream above the road. However, because the area bordering the stream is a riparian reserve, treatment activities will not take place within at least 100-feet of either side of the stream. This will provide more than adequate protection for the POC.

Several mitigation measures have been proposed to prevent the introduction of POC root disease into the fire recovery area. They are:

- Wash all equipment that has been used within the range of POC with a high-pressure hose before entering the project area.
- Do not allow logging camps near POC.
- Do not allow operations during wet weather. The normal operating season will be from June 1 to October 1, but this may be adjusted as conditions warrant.
- Do not allow vehicles on Road 36N20B. Decommission the road by allowing natural vegetation to reclaim the road. Note: Installation of a blockade may be preferable as it would immediately keep vehicles off the road.
- Surface Road 36N20A with coarse rock for 150 feet on each side of the crossing that contains POC. Place a gravel berm on each side of the road in this area to prevent runoff and do not water this section for dust abatement. Following treatment activities, close the road to further traffic by installing a blockade at least 150 feet below the crossing. Note: To prevent disease introduction, application of gravel on Road 36N20A is only needed within 50-feet of each side of the crossing. There is also no need for a berm. The added soil movement associated with the construction of a berm may actually increase the risk of disease introduction more than the added protection it would provide.

The mitigation measures above are designed to separate water, POC and sources of fungal inoculum. The usual distance of separation that is accepted is 25 feet, uphill and down, and 50 feet downhill where there is a running creek. These measures have been used successfully on many projects throughout the range of POC. In addition, a recent study by Goheen, Marshall, Hansen and Betlejewski (1999) has demonstrated the effectiveness of vehicle washing in decreasing the transport of *P. lateralis* inoculum. All roads in the recovery area are currently open to the public and no mitigation measures are in place. However, because the only two roads that intersect with POC are dead end spurs that receive very little traffic, the current risk to the area is low. If the Clear Creek LSR Recovery efforts go forward, the risk of POC root disease introduction will increase with increased vehicular activity. However, if the mitigation measures above are properly implemented and administered, the risk of disease introduction to the area will be reduced to very low levels, even lower than they are at the present time.

Please call Dave Schultz (530-242-2335) or me (530-242-2336) if you need additional assistance or information.

/s/ Pete Angwin

Plant Pathologist

cc: Dave Schultz, Peter Van Susteren, Francis Mangels, Jeff Huhtala, Steve Bachmann, Jim Harvey

Attachment: Recovery Area Map

Reference:

Goheen, D.J., K. Marshall, E.M. Hansen and F. Betlejewski. 1999. Effectiveness of vehicle washing in decreasing transport of *Phytophthora lateralis* inoculum: a case study. USDA ForestService, Southwest Oregon Disease Forest Insect and Disease Service Center Report #SWOFIDCS-00-2. 7p.