Coast Redwood Cone Collection 2009 - Vintage Year in Mendocino County

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The most significant coast redwood (Sequoia sempervirens) cone crop in nearly 25 years was produced in Mendocino County in 2009. Cone survey and collection efforts were coordinated by the CAL FIRE L.A. Moran Reforestation Center (LAMRC) in order to replenish the State Seed Bank and reserves. A partnership of five landowners and interested stakeholders contributed to these redwood collection efforts. The cone collection and processing efforts are presented as a case study including discussion of cone surveys and collection results at both Jackson Demonstration State Forest and Mendocino Redwood Company.

Coast Redwood is a sprouting species and significant cone crops are rare. It is not completely known what combination of factors aligned to produce the 2009 cone crop. Factors may have included weather patterns both short and long term, tree health and stress, and timing of pollination. Curiously many but not all of the trees with significant cone crops were located in or near burned areas from the 2008 Mendocino County lightning fires. In fact, the most productive cone collection area in 2009 was located within a burned area. However, it is beyond the scope of the case study to research whether cone productivity is correlated to proximity of burned areas.

The poster includes discussion of: the CAL FIRE cone survey and seed bank program, seed zones and elevation, criteria for tree selection, assessment of cones for seed ripeness and viability, cone collection and transport, seed extraction and testing, seed storage in the CAL FIRE Seed Bank, and the history of previous coast redwood cone collection efforts. Logistical problems will be described including the necessary removal of all plant parts, other than cones and seed, prior to transport from a quarantine county to the LAMRC site to comply with Sudden Oak Death (SOD) regulations. The clipping could not have been accomplished without the considerable contributions of CAL FIRE Conservation Camp crews and the cooperation of the California Department of Corrections and Rehabilitation.

Significant and viable cone crops are necessary to conduct an efficient cone collection operation. Approximately 320 bushels (8 gallons/bu) of cones were collected in 2009, resulting in over 800 pounds of coast redwood seed. The combined yield from three separate collections was approximately 2.5 pounds of seed per bushel of cones which is significantly higher than the historic average of 0.5 pounds of seed per bushel. The seed collected in 2009 are somewhat smaller than average for seed zones 094 and 095 with a weighted average of approximately 126,400 seed per pound. The average germination rate is 60% - a very good result. High quality seeds produce vigorous seedlings and have higher storage capability. The redwood seed produced from the 2009 collections will be stored at the CAL FIRE Seed Bank and used to grow an estimated 23 million seedlings that will be used in reforestation efforts for many years.