**State of California**

**The Resources Agency**

**Memorandum**

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| **To:**         | California Board of Forestry and Fire Protection   | **Date:** August 30, 2024**Telephone:** **530-379-5085****Website:** www.fire.ca.gov |

**From**: Stewart McMorrow, Staff Chief Wildfire Resilience

Lewis A. Moran Reforestation Center

Resource Management

**California Department of Forestry and Fire Protection (CAL FIRE)**

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| **Subject:**  | Proposed new hardwood seedling prices at LAMRC. |

**Background**

The Lewis A. Moran Reforestation Center (LAMRC) in Davis produces approximately 250,000 containerized seedlings per year for reforestation on non-industrial, privately-owned forest lands in California. We are also authorized and mandated to produce seedlings for other conservation purposes, such as wildlife habit improvement, soil erosion control and watershed protection, per Public Resources Code (PRC), Sections [4681](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4681.&nodeTreePath=7.2.11.2&lawCode=PRC) and [4683](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=4683.&nodeTreePath=7.2.11.2&lawCode=PRC).

Since reopening the nursery in 2018, and due to several catastrophic wildfires in subsequent years, all of our efforts and priorities have been focused on producing conifer seedlings for post-fire reforestation. Many of our customers are reforesting not with the intent to harvest trees in the future, but to merely reestablish the forest environment to pre-fire conditions. For this reason, many customers have submitted requests to purchase seedlings other than commercial conifers. In response, the nursery has revived, on a limited basis, the hardwood propagation program that ceased in 2003, when the nursery closed.

The following information describes the analysis and procedures we used to determine appropriate hardwood seedling prices for our customers.

**Cost of Productions Considerations**

Native hardwoods are much more costly to produce than are conifers, necessitating a higher pricing structure for sales. Major considerations are:

* **Square footage of space required.** Hardwoods generally require 2-4 times the growing area for a given number of plants, as compared to conifers. This is due to their spreading canopies and aggressive root systems which require larger containers.
* **Irrigation costs.**  The automated, efficient overhead irrigation boom system used for conifer production is not compatible with hardwood production. Hand watering with a wand is required for hardwoods, to deliver water under the spreading foliage, as well as to accommodate differing irrigation frequencies, depending on species. This is very time and labor intensive.
* **Pest management.** Hardwood seedlings experience many common disease and insect issues, requiring a higher level of pest control activities than conifers. Diseases such as leaf spot, twig die-back and powdery mildew are common occurrences, as are insect issues with aphids, whiteflies, mites, and fungus gnats. Aside from the direct damage insects do, they are often vectors for disease organisms.
* **Economy of scale.** Simply put,the larger the quantity of an item produced, the lower the associated unit cost of production. This is important in two ways. First, when comparing our own costs of production between conifers and hardwoods. Second, when comparing our prices to those charged by private nurseries. Hardwoods grown in private nurseries are generally produced and sold in small quantities as compared to reforestation/restoration nurseries. A smaller scale of production necessarily results in higher production costs per unit, resulting in a higher purchase price for the customer.

**Methods of Price Analysis**

In determining appropriate prices for hardwood seedlings grown at LAMRC, two strategies were considered and analyzed.

1. Use historical data from LAMRC hardwood seedling sales between 1989 and 1999 and inflate those figures to 2024 dollars. Prices charged in those years were based on this facility’s specific costs of production and were approved by the Board of Forestry at that time. See attached spreadsheet tab, “Old Prices Adjusted to 2024 $$”.
2. Survey prices charged by private nurseries selling native plants of California, then price ours at the upper 25%, to avoid the perception of unfair competition. To this end, a price survey was conducted of approximately 70 private nurseries in California in spring, 2024. See the “Private Nursery Price Survey” and “Upper 25% Calculations” tabs.

**Remarks**

Of the approx. 70 private nurseries surveyed, only 11 are producing similar species in similar containers as LAMRC this year. The remaining nurseries are growing plants in 1-gallon pots or larger only, such as for landscaping.

Private nurseries generally resemble “retail” stores, selling individual plants or in small quantities, as their customers are generally “landscaping” on a small piece of property. They generally produce seedlings of forest species in relatively small quantities, reflecting a smaller economy of scale and necessitating a higher cost to their customers.

Conversely, LAMRC resembles a “wholesale” outlet. Customers at LAMRC are “restoring” native plant communities, purchasing large numbers of plants at a time. With a much larger economy of scale at LAMRC, our seedlings are less costly to produce, therefore relatively lower prices should be established for our customers.

**Conclusions**

Inflating previously approved prices to today’s dollars (method of price analysis #1), is the more appropriate method to use in determining new prices for hardwood seedlings. LAMRC, has a larger economy of scale, a different customer base and a different mission than most private nurseries. If required to charge similarly high prices as private nurseries do for landscaping material, our plants would simply not sell.

The following table summarizes the results our analysis. We propose adopting the prices determined by method of analysis #1, adjust previous prices for inflation.



