

## ARBORIST REPORT

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### **Eucalyptus Hazard Assessment and Management Recommendations Zone 5 Stand at Mesa and Olema Bolinas Roads**

*Prepared for:*  
**The Bolinas Eucalyptus Project  
Bolinas, California**

*Prepared by:*  
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California Professional Forester  
ARBORSCIENCE, LLC**

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## EXECUTIVE SUMMARY

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The Zone 5 stand of trees is in advanced decline. Tree failures due to broken tree tops, uprooting, and a wildfire will likely block both primary evacuation/emergency access routes, which could result in mass human casualties. This hazardous condition appears to qualify as a public nuisance that could be recognized by the Marin County Board of Supervisors, and then proactively addressed. I recommend that the stand be removed and replaced by a mixed evergreen woodland of coast live oak, California bay, buckeye, and toyon. This will substantially improve public safety and create a long-term sustainable Monarch butterfly habitat.

## ASSIGNMENT

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The Bolinas Eucalyptus Project hired **ARBORSCIENCE, LLC** to evaluate the condition of and provide management recommendations for a 10.5-acre stand of bluegum eucalyptus (*Eucalyptus globulus*) growing near the intersection of Mesa Road and Olema Bolinas Road in Bolinas. I inspected the subject trees on April 29, 2023 with consideration of the inventory prepared by East-West Forestry Associates<sup>1</sup> and a report by Urban Forestry Associates<sup>2</sup>. I have also provided management advice in the past to the Bolinas Public Utility District (BPUD) and secured Federal funding to reduce fire fuels in this stand.<sup>3</sup> I have also evaluated and prioritized treatment of 13 other eucalyptus stands in Bolinas.<sup>4</sup>

## BACKGROUND

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The subject eucalyptus stand occupies three separate parcels—a portion of the BPUD property (APN: 193-030-38) and three developed private parcels at 10, 20, and 30 Mesa Road (APNs: 193-020-51, 193-020-41, and 193-020-25). The main access to the Bolinas Mesa passes through the stand (Mesa Road) and the main road access to downtown Bolinas (Olema Bolinas Road) borders the east margin of the Zone 5 stand (Figure 1). Both of these roads are primary evacuation routes for Bolinas and provide first-responder access for mutual aid resources from outside Bolinas.

## SUBJECT STAND DESCRIPTION

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The Zone 5 eucalyptus stand (Figure 1, Page 3) originated in the early 1900s as planted bluegum and cypress trees along the roadsides that generated seed for volunteer trees which advanced into the nearby grasslands. Large trees that grow along the roadways were topped by PG&E in 1964 for utility line clearance. The rest of the stand remained untended until the 2000s when the stand was thinned in 2011 for fire safety purposes—removing smaller understory trees and accumulated forest debris (branches and bark).

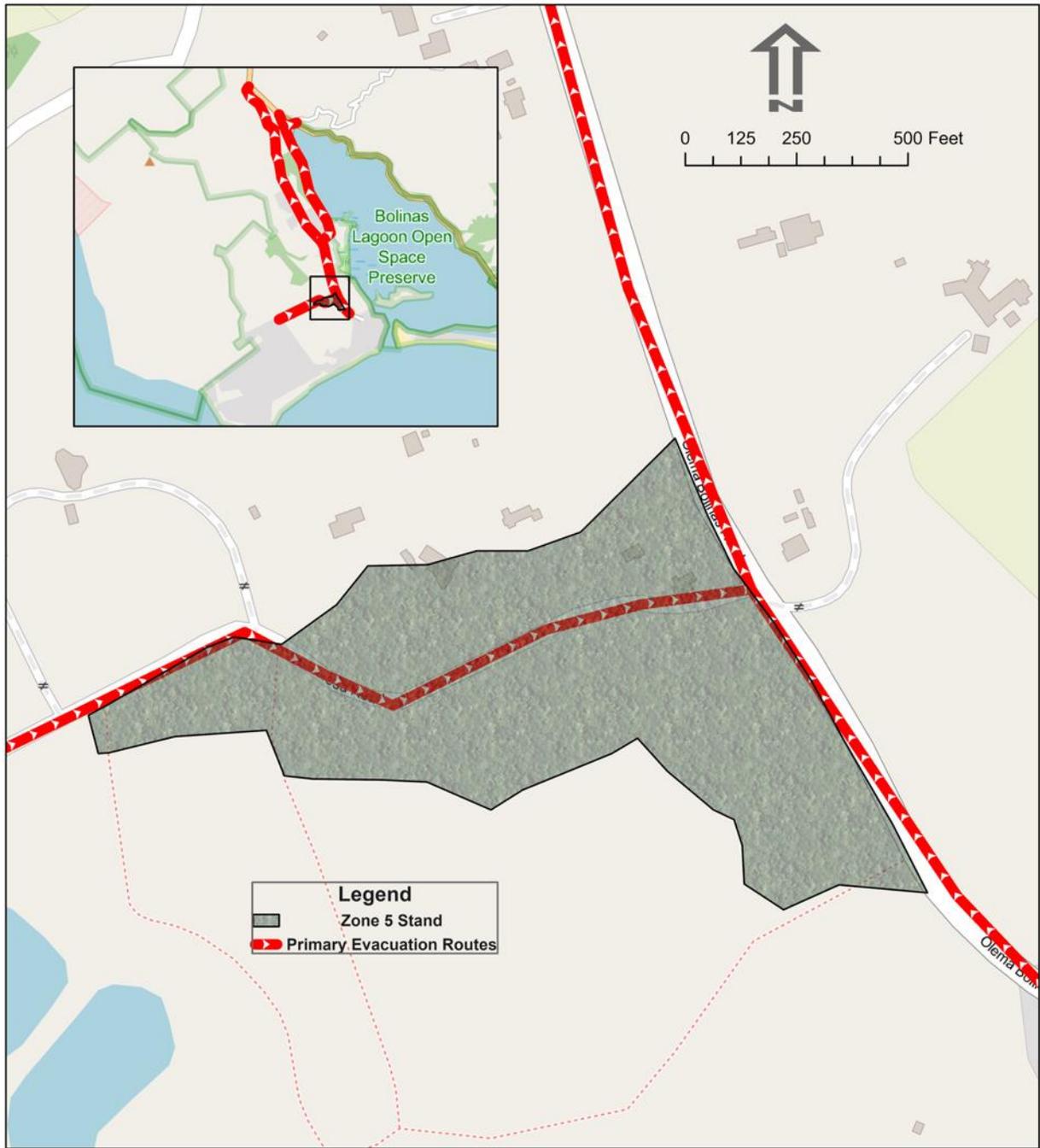
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<sup>1</sup> The Bolinas Eucalyptus Project Inventory: Zone 5 (March 2023).

<sup>2</sup> Report by Benjamin Anderson (January 5, 2021).

<sup>3</sup> As the Marin County Fire Department Forester and FireSafe Marin President.

<sup>4</sup> Assessment of 14 Eucalyptus Stands: Locations, Attributes, Fire Hazards, Treatments & Priorities (March 2021)



**ARBORSCIENCE, LLC**  
Sound Tree Advice

**Figure 1**  
**Zone 5 Eucalyptus Stand**  
**and Evacuation Routes**  
**Bolinas, California**

**General Condition of Decline.** All of the bluegum eucalyptus in the stand have been heavily defoliated by the Eucalyptus Tortoise Beetles (*Trachymela sloanei*) which have significantly reduced their vigor (Photo 1, below). This defoliation has resulted in decreased capacity to close wounds and develop sufficient wood needed for adequate trunk taper, and is necessary to develop strong root systems for stability and compensate for wood loss due to decay. **The stand is in extremely poor condition and is not naturally regenerating within its existing footprint.**



**Roadside Trees.** The large trees growing along the roadside have significant structural defects related to topping cuts made by PG&E in 1964 with associated advanced wood decay and weakly attached multiple trunks with included bark that are highly prone to failure (Photo 2, below). **These roadside trees present a high failure risk to both Mesa Road and Olema-Bolinas Road. A strong earthquake would likely cause these weakly attached trunks to fail onto the roads.**



**Windthrow.** The subject stand is highly unstable due to: (1) its development history (it was not regularly thinned) which created tall trees with insufficient taper, and (2) its proximity to large open areas to west that are used for settling ponds that allow full-force-winds to reach the stand. Nearly half of the trees in the stand have height-to-diameter ratios that exceed 50%, which reflects a highly unstable stand condition (Figure 2). Recent storms toppled 28 trees (Photo 3 below), resulting in multiple closures of Mesa road for days at a time, a crushed vehicle where two young Bolinas residents nearly lost their lives, and a trail system that remains closed 5 months after the first of the storms. **Trees in this stand within falling distance of roads are likely to uproot and block roads, and present high failure risks. Important note:** leaving a portion (remnant island) of this stand for monarch butterfly habitat is inadvisable because these trees do not have the required structure to be stable without surrounding trees, and they will be toppled by normal winds in the area.

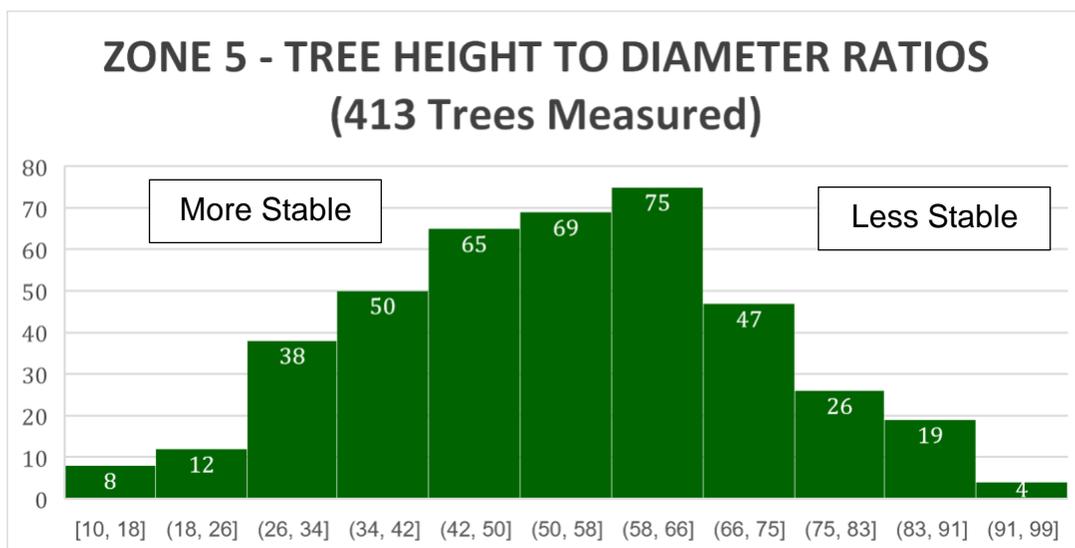


Figure 2. Data for graph from The Bolinas Eucalyptus Project Inventory: Zone 5 (March 2023).



**Wildfire Considerations.** Bluegum eucalyptus stands create high fire hazards due to dead leaves, bark, and branches that collect in the understory. Tree failures due to uprooting (or trunk failure at old topping cuts) could block road and trails during a wildfire. Their leaves are rich in volatile oils and are often carried far downwind during wildfire incidents to ignite multiple spot fires. Should the Zone 5 stand ignite, both Mesa and Olema Bolinas Roads would likely be impassable to responding emergency resources and to residents of the heavily populated areas of Bolinas. Should these primary evacuation routes be blocked by trunk failures or burning trees from Zone 5, mass human casualties would likely result, as it happened in the 2018 Camp Fire that killed 85 people who were unable to evacuate Paradise.

## CONCLUSIONS AND RECOMMENDATIONS

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The Zone 5 stand of trees is in advanced decline. Tree failures due to spar failures, uprooting, and a wildfire will likely block primary evacuation/emergency access routes, which could result in mass human casualties. This hazardous condition appears to qualify as a public nuisance that could be recognized by the Marin County Board of Supervisors. I recommend that the stand be replaced by a mixed evergreen woodland of coast live oak, California bay, buckeye, and toyon. This will substantially improve public safety and create a long-term sustainable Monarch butterfly habitat.

Sincerely,

ARBORSCIENCE, LLC

Dr. Kent R. Julin

ISA Certified Arborist #WE-8733A

ISA Tree Risk Assessor Qualified

California Registered Professional Forester #2648

**KENT R. JULIN, PH.D.**  
*Registered Professional Forester #2648*  
*ISA Certified Arborist WE-8733A*  
*ISA Tree Risk Assessment Qualified*



## Areas of Professional Expertise

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- ❖ Tree Management Plans
- ❖ Tree Structural Hazard Assessments
- ❖ Vegetation Analysis, Evaluation, and Management
- ❖ Species Selection and Planting Specifications
- ❖ Tree-Protection Plans
- ❖ Tree Appraisal (>1,000 Trees Appraised)
- ❖ Soil Erosion Mitigation and Planning
- ❖ Tree Care Specifications
- ❖ Pest and Disease Diagnosis
- ❖ Forensic Investigation and Expert Witness Testimony
- ❖ View Restoration and Maintenance

## Education

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Ph.D. Forestry, University of Washington, Seattle 1988  
M.S. Forestry, University of Washington, Seattle 1983  
B.S. Forest Resources Management, Humboldt State University, Arcata 1981

## Professional Experience

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2010 – Date	Principal Consulting Arborist and Forester, Arborscience, Woodacre, CA
2006 – 2010	Associate Urban Forester Urban Forestry Associates, San Rafael, CA
1998 – 2013	Marin County Forester Marin County Fire Department, Woodacre, CA
1995 – 1998	Research Forester, Tongass National Forest Plan Revision USDA Pacific Northwest Research Station, Juneau, AK
1989 – 1995	Senior Environmental Scientist, Harding Lawson Associates, Novato

## Partial Client List

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- ❖ Sausalito, Belvedere, Mill Valley, Corte Madera, Larkspur, Novato, Petaluma
- ❖ Marin County Parks and Open Space and Flood Control Districts
- ❖ BART (San Francisco Bay Area Rapid Transit District)
- ❖ Skyfarm II HOA, DeSilva Island HOA, Old Mill HOA