

## San Vicente Redwoods: Redwood Defect Pilot Study



### Tree #388

- 1<sup>st</sup> log 18" Inside Bark (IB) – 270 bf (board feet) gross volume
- Deduct 120 bf for damage from 2020 fire  
44% deduction ( **between red arrows** )
- 150 bf net volume
- **Deductions:**
- 3" of rot from 2020 fire around 2/3 of circumference = 120 bf deduction
- Past Damage: 42 years ago (1980) (**yellow arrow**) - possible mechanical damage = 5 bf deduction
- 2<sup>nd</sup> log 13" IB – 120 bf net
- No deductions from 2020 fire
- "Stain" visible in heartwood
- 3<sup>rd</sup> log 8" IB – 30 bf net
- No defect from 2020 fire
- Top of the tree is very dry

2020 merchantable volume for tree:

420 bf gross

120 bf deduction from damage due to 2020 fire

300 bf net

~29% defect due to 2020 fire

Potential future implications on growth patterns and deductions for rot:

At a 2% growth rate, (projected growth rate post-fire as leaf area regrows) this tree is anticipated to put on 3" of diameter growth (1.5" per side) over the next 10 years. The 1<sup>st</sup> 20' log represents 64% of the volume from the tree. Since 2/3 of the circumference of the 1<sup>st</sup> log is impacted by rot in heat-damaged wood, the future growth is expected to take approximately ? years to encapsulate this rot. It is possible that the rot in trees with this degree of damage will extend inward and upward from what is observed in 2022, two years post-fire.



Condition of tree in 2022:

- DBH: 20
- Height: 83', with a broken top
- Burn Severity: Moderate-high
- Crown: 95% torched, 5% scorched; 0% live pre-fire canopy
- Fungus visible: 2/4 quadrants
- Dead cambium: 2/4 quadrants
- Scorch height: 72'
- Torch height: 83'
- Max bole char height: 83'
- Sprouting from: Bole
- Sprouting % of tree: 70
- Feet<sup>2</sup> of sprouts at base: 5
- Mold area: 8\*11" and 11\*40" patches on bole, 464 inches<sup>2</sup>
- Cambium completely burned away in some patches



Tree #388 Coniophora Puteana



Tree #388 Coniophora Puteana



Tree #388 Burned exposed cambium



#388 Burned exposed cambium



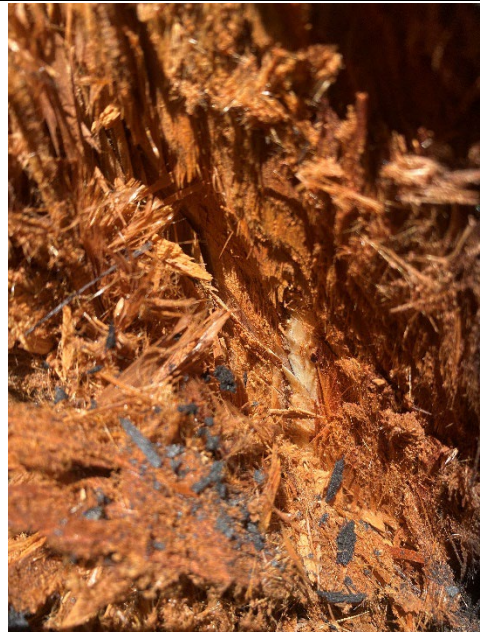
Tree #388 Manually exposed dead cambium



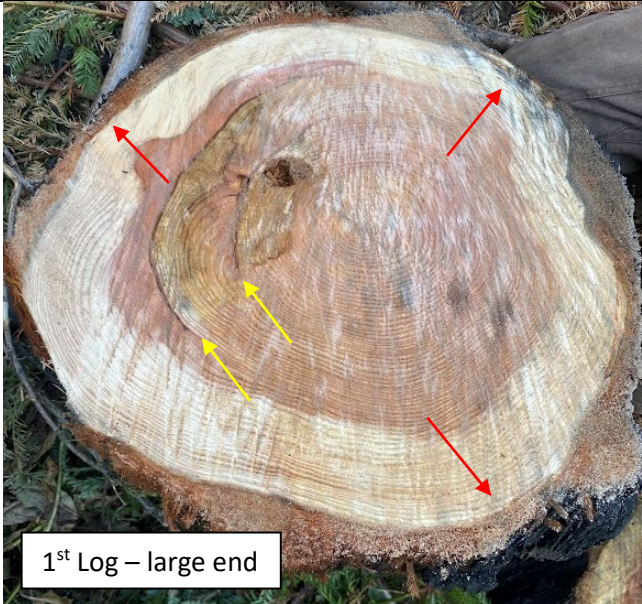
Tree #388 Manually exposed live cambium



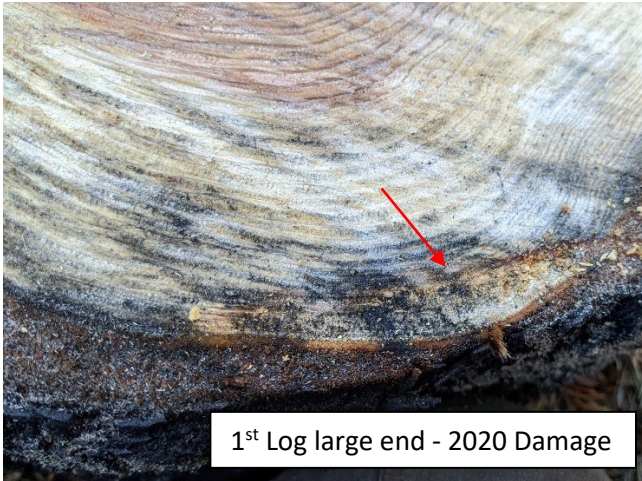
Tree #388 Manually exposed dead cambium



Tree #388 Manually exposed live cambium



1<sup>st</sup> Log – large end



1<sup>st</sup> Log large end - 2020 Damage



1<sup>st</sup> Log small end – No 2020 Damage, yellowing sapwood

**Tree #322**

- 1<sup>st</sup> log 13" IB = 120 bf gross volume
- No deductions from 2020 fire
- Yellowing sapwood, 80% dry
- **Deductions:**
- No deductions from 2020 fire\*
- Past Damage: 32 years ago (1990) and 49 years ago (1973) (yellow arrows) - possible mechanical damage – not visible on small end = 10 bf deduction
- 2<sup>nd</sup> log 12" IB – 100 bf net
- No deductions from 2020 fire
- Soft, but sound and sapwood is yellowing/dry
- 3<sup>rd</sup> log 8" IB – 30 bf net
- No defect from 2020 fire
- Top of the tree is very dry

2020 merchantable volume for tree:  
250 bf net

\*0% deduction due to 2020 fire damage; however damage to the cambium and very thin layer of sapwood over 1/3 of circumference on large end (red arrows) would impact future defect as the tree continues to grow and encapsulate the rot pockets.

2<sup>nd</sup> Log small end – No 2020 Damage, Dry



Condition of tree in 2022:

- In riparian corridor
- DBH: 22
- Height: 139'
- Burn Severity: High
- Crown: 100% torched, 0% scorched; 0% live pre-fire canopy
- Fungus visible: 1/4 quadrants
- Dead cambium: 1/4 quadrants
- Scorch height: 0'
- Torch height: 139'
- Max bole char height: 139'
- Sprouting from: Bole
- Sprouting % of tree: 75
- Feet<sup>2</sup> of sprouts at base: 7
- Fungus area: 114 inches<sup>2</sup>



Tree #322



Tree #322 Manually exposed live cambium



Tree #322 Manually exposed live cambium



Tree #322 Manually exposed live cambium



Tree #322 Manually exposed dead cambium



Tree #322 Coniophora Puteana





1<sup>st</sup> Log large end - 2020 Damage



1<sup>st</sup> Log small end - 1" of rot from 2020 Fire



2<sup>nd</sup> Log small end - 2" of rot from 2020 Fire

**Tree #394**

- 1<sup>st</sup> log 16" IB = 200 bf gross volume
- Yellowing sapwood all the way around
- **Deductions:**
- 1" of rot from 2020 fire around 1/3 of circumference (red arrow) = 6 bf deduction
- Stain visible in heartwood (yellow arrow)
  
- 2<sup>nd</sup> log 10" IB - 70 bf gross
- **Deductions:**
- 2" of rot from 2020 fire around circumference = 50 bf deduction
- Stain visible in heartwood (yellow arrow)
- Dry

2020 merchantable volume for tree:

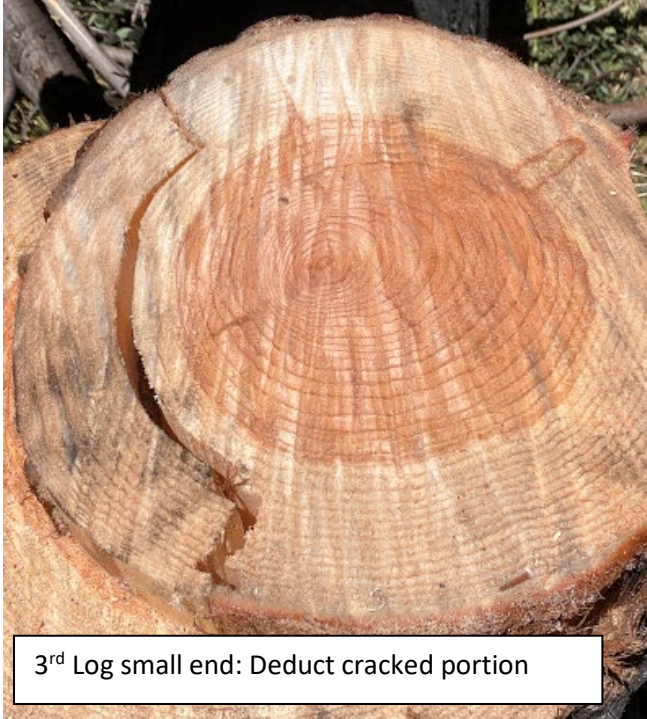
270 bf gross

56 bf deduction from damage due to 2020 fire

214 bf net

~21% defect due to 2020 fire

- 3<sup>rd</sup> log
- Wetter, but could be because log is sitting in the shade
- **Deductions:**
- Would deduct portion of wood that breaks apart



3<sup>rd</sup> Log small end: Deduct cracked portion



Condition of tree in 2022:

- Next to massive stump
- In riparian corridor
- DBH: 22
- Height: 114'
- Burn Severity: High
- Crown: 100% torched, 0% scorched; 0% live pre-fire canopy
- Fungus visible: 2/4 quadrants
- Dead cambium: 3/4 quadrants
- Scorch height: 0'
- Torch height: 114'
- Max bole char height: 97'
- Sprouting from: Bole
- Sprouting % of tree: 75
- Feet<sup>2</sup> of sprouts at base: 6
- Fungus area: 97" from ground. 97\*11 (max 22) 1067 inches<sup>2</sup>
- High cambium damage on side of bole facing large burned stump



Tree #394



Tree #394 Manually exposed dead cambium



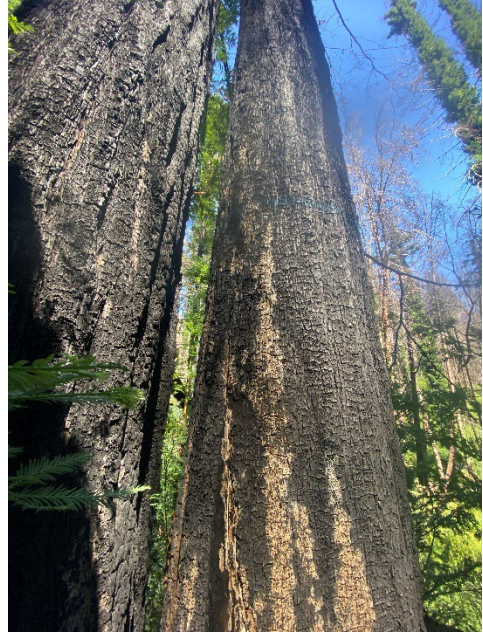
Tree #394 Manually exposed live cambium



Tree #394 Manually exposed dead cambium



Tree #394 Manually exposed live cambium



Tree #394 Coniophora puteana



Tree #394 Coniophora puteana



1<sup>st</sup> Log small end - 2" of rot around 1/3 from 2020 Fire



2<sup>nd</sup> Log small end – No deductions, Stain + Dry



### Tree #323

- 1<sup>st</sup> log 18" IB = 270 bf gross volume
- **Deductions:**
- 2" of rot from 2020 fire around 1/3 of circumference (between red arrows) = 23 bf deduction
- Stain visible in heartwood (yellow arrow)

- 2<sup>nd</sup> log 10" IB – 70 bf gross
- **Deductions:**
- No deductions from 2020 fire
- Stain visible throughout sap and heartwood

2020 merchantable volume for tree:  
 340 bf gross  
 23 bf deduction from damage due to 2020 fire  
 317 bf net  
 ~7% defect due to 2020 fire

### Condition of tree in 2022:

- Next to a massive stump
- DBH: 14
- Height: 92'
- Burn Severity: High
- Crown: 95% torched, 5% scorched; 0% live pre-fire canopy
- Fungus visible: 1/4 quadrants
- Dead cambium: 2/4 quadrants
- Scorch height: 89'
- Torch height: 92'
- Max bole char height: 88'
- Sprouting from: Bole
- Sprouting % of tree: 20
- Feet<sup>2</sup> of sprouts at base: 8
- Fungus area: 84" from ground. 84\*5 (max 8) 420 inches<sup>2</sup>



Tree #323



Tree #323 *Coniophora puteana*



Tree #323 Manually exposed live cambium



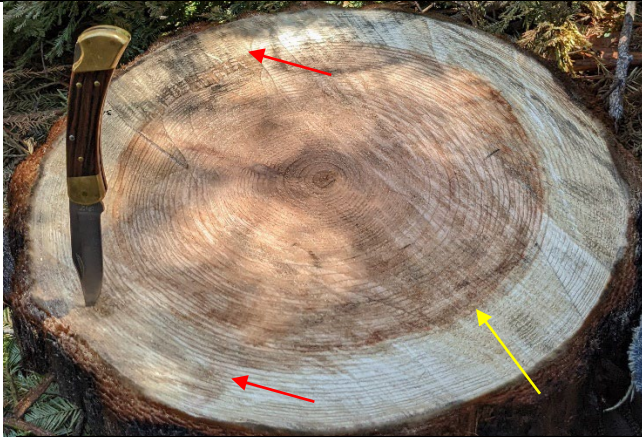
Tree #323 Manually exposed live cambium



Tree #323 Manually exposed dead cambium



Tree #323 Manually exposed dead cambium



1<sup>st</sup> Log small end - 2" of rot around 1/3 from 2020 Fire



2<sup>nd</sup> Log small end – No deductions, Stain + Dry



3<sup>rd</sup> Log small end – No deductions, Stain + Dry

**Tree #391**

- 1<sup>st</sup> log 18" IB = 270 bf gross volume
- **Deductions:**
- 2" of soft rot from 2020 fire around 1/2 of circumference (**between red arrows**) = 35 bf deduction
- Stain visible in heartwood (**yellow arrow**)

- 2<sup>nd</sup> Log 13" IB – 120 bf gross
- **Deductions:**
- No deductions from 2020 fire
- Stain visible throughout sap and heartwood

- 3<sup>rd</sup> Log 10" IB – 70 bf gross
- **Deductions:**
- No deductions from 2020 fire
- Stain visible throughout sap and heartwood

2020 merchantable volume for tree:  
 460 bf gross  
 35 bf deduction from damage due to 2020 fire  
 335 bf net  
 ~8% defect due to 2020 fire

Tree #391 started to release @ 25 years old and had 8-9x the volume in 40 years after the release





Condition of tree in 2022:

- Next to massive stump
- In riparian corridor
- DBH: 22
- Height: 155'
- Burn Severity: High
- Crown: 100% torched, 0% scorched; 0% live pre-fire canopy
- Fungus visible: 3/4 quadrants
- Dead cambium: 1/4 quadrants
- Scorch height: 0'
- Torch height: 155'
- Max bole char height: 98'
- Sprouting from: Bole
- Sprouting % of tree: 80
- Feet<sup>2</sup> of sprouts at base: 10
- Fungus area: 117" from ground. 117\*12 (max 17) and 3\*32. 1500 inches<sup>2</sup>



Tree #391



Tree #391



Tree #391



Tree #391



Tree #391 Manually exposed live cambium



Tree #391 Manually exposed live cambium



Tree #391 Manually exposed live cambium



Tree #391 Manually exposed dead cambium



Tree #391 *Coniophora puteana*



Tree #391 *Coniophora puteana*