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# Using High-Throughput Tigercat Mobile Pyrolysis to Process Unmerchantable Forest Material into Biochar at Anthony Chabot Park (East Bay Regional Park District)

Roger Smullen CEO & Co-Founder  
Earth Foundries, Inc.  
Sustainable Forest Waste Disposal  
February 12<sup>th</sup>, 2024



# Project Acknowledgements

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- Project Funding:

- Funding Entity: 

- Funds Source:



- East Bay Regional Park District (EBRPD):  
Givonne Law & Pablo Cepero

- Contractors: Ascent Forestry, Falk Forestry, Earth Foundries



# Agenda

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- Earth Foundries Introduction
- Tigercat 6050 Performance
- EBRPD Project Summary
- EBRPD Biochar Usage
- Questions



# Earth Foundries, Inc.

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- Goal: End California's Catastrophic Wildfires and Address Climate Change through sustainable forest waste up-cycling that will lower the cost and carbon footprint of landscape-scale forest health projects
- Entity: Saratoga, California-based, Certified Woman-owned, Benefit "B" Corporation (B Labs Certification underway)
- Funding: Bootstrapped, Grants, Revenue Generating
- Founders: Dede and Roger Smullen



# Earth Foundries: What we do (now)



- Landscape Scale Forest Health Project Management
  - ICS (Incident Command structure)
  - Agency Liaison
  - Proposals/Contracts
  - GIS Mapping Services
  - Biochar Distribution
  - Carbon Credits (in process)
- Slash Attack™ : Growing Fleet of Carbonizers (CAL FIRE Grant)
- Biochar Grant Projects (USFS/CAL FIRE)

Mobile, Sustainable Forest Waste Disposal

# Tigercat 6050 Performance



- Throughput: 10-15 green tons/hour
- Water usage: 2-4 gallons/hour
- Biochar Output:
  - Carbon Yield: ~10%
  - Carbon, Ash: 80-90%, 5-10%
  - H:C : 0.2
  - Surface Area: ~400m<sup>2</sup>/g
  - Moisture Content: 50-60%
- GHG/Emissions Reductions (Compared to Pile Burning)\*
  - PM<sub>2.5</sub>/10: 96%
  - CO/CO<sub>2</sub>/CH<sub>4</sub>: 96%/43%/54%

\* (California Board of Forestry and Fire Projection/Ascent Environmental 2022)



# EBRPD State Funded Project

- **Project:** 365 Acre Hazardous Fuel Reduction Project in Anthony Chabot Park in the SF Bay Area
- **Process:** On Site Tigercat 6050
- **Benefits:**
  - Reduce Neighborhood Truck Traffic
  - Reduce Carbon Footprint/ Sequester Carbon
  - Utilize Biochar Within Park District Operations



Biochar Processing Site

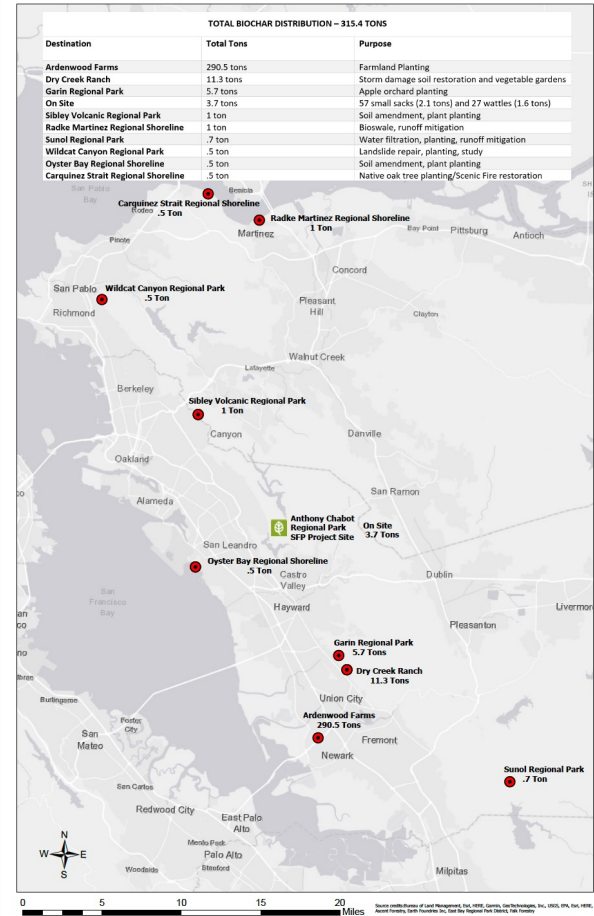
Reducing Carbon Footprint While Turning Waste into Value



# EBRPD Biochar Usage

- Biochar Produced/Distributed: 315 tons (through January 2024)
- Uses include:
  - Farming/Crop Planting
  - Storm Damage repair/Soil Restoration
  - Native Tree Planting
  - Bioswale
  - Rooftop Water Filtration
  - Vegetable Gardens/Planting Mix
  - Wattles for Erosion Control
- Park District Long term Goal: Convert up to 50% of generated biomass into biochar for internal use

EBRPD SFP Biochar Distribution Summary through 1/31/24



Biochar Distribution Through January



# EBRPD Biochar Use Examples



Crop Planting at Ardenwood Farms



Native Oak Replanting (Scenic Fire Site)



Rooftop Runoff Filtration



Garin Ranch Apple Orchard

EBRPD Is Utilizing Biochar Produced from Hazardous Fuels Reductions Projects for Multiple Beneficial Uses



# EBRPD Biochar Use Restoration Examples



Wildcat Canyon  
Landslide Spoils  
Restoration



Dry Creek Ranch Storm Damage Soil Restoration

EBRPD Is Utilizing Biochar Produced from Hazardous Fuels Reductions Projects for Multiple Beneficial Uses



# Thank you!/Questions?

Follow up/More info:

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