



The California Climate Policy Summit 2022

Accelerating action for Natural Carbon
Sequestration (Accrual)



Regenerative Agriculture: Natural Carbon ~~Sequestration~~ Accrual

California Climate
Policy Summit 2022



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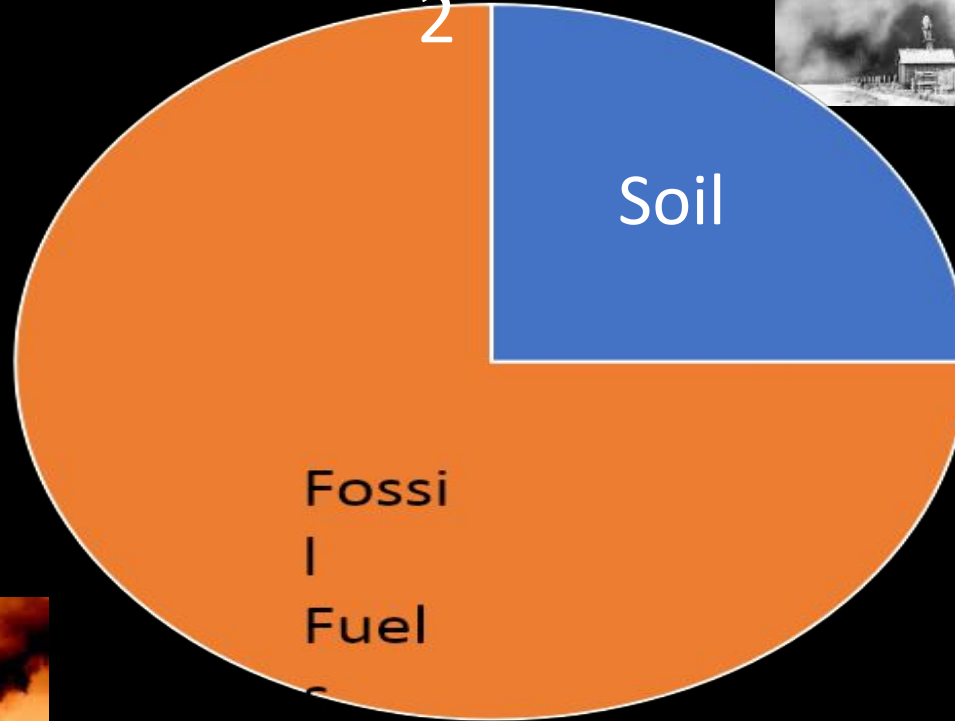
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Atmospheric CO₂ Sources



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<https://www.ipcc.ch/site/assets/uploads/2018/02/TAR-03.pdf>



Degenerative Agriculture

Increase

Soil Temperature 120°
CO₂ Respiration
Soil Fertility
Evaporation

Decrease

Water holding capacity
Soil Fertility – loss of C, biology
Soil structure – erosion
Water percolation
Yield
Profit



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Reuters
SUSTAINABILITY

Only 60 Years of Farming Left If Soil Degradation Continues

Generating three centimeters of topsoil takes 1,000 years, and if current rates of degradation continue all of the world's topsoil could be gone within 60 years, a senior UN official said



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The Erosion of Civilization



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Some essential principles

Regenerative Agriculture

- No-till, minimum disturbance.
- Soil cover – live root in the ground
- Diversity / Rotation
- If possible, consider inclusion of livestock





Famine to Food Security



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Liquid Sun: Roots leaking exudates!



1, 2, 4, 8, 16 Plant
Species

0, 100, 200 N/ac/yr

22% more carbon

200#s N can not
produce what diversity
produces



Jena Studies on Biodiversity



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CSU Chico, Willcox, AZ
10.8 tons of C/ha/yr

New Paradigm



Average
10.5 tons C/ha/yr



Russell Hedrick, NC
8.5 tons of C/ha/yr



Gabe Brown, ND
11.6 tons of C/ha/yr

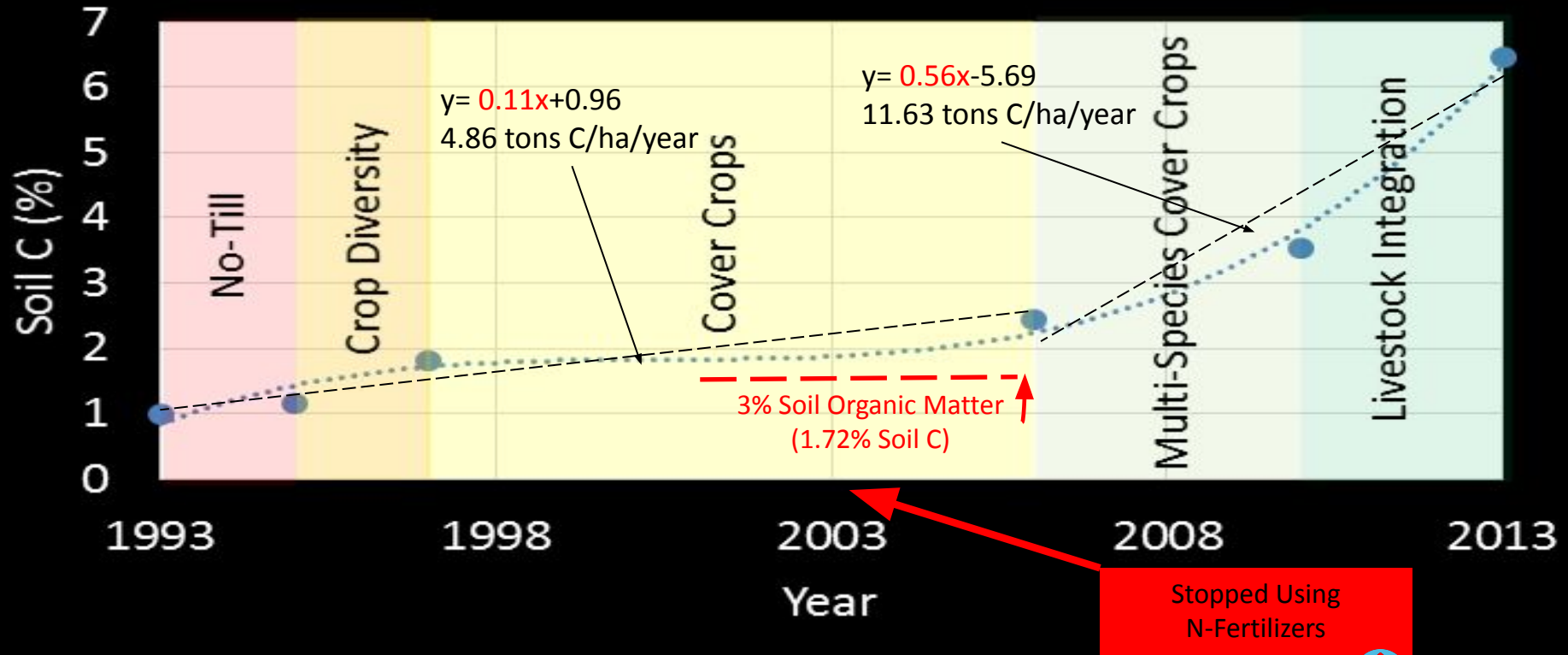


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David Johnson, NM
10.7 tons of C/ha/yr

Gabe Brown's Soil Carbon Data



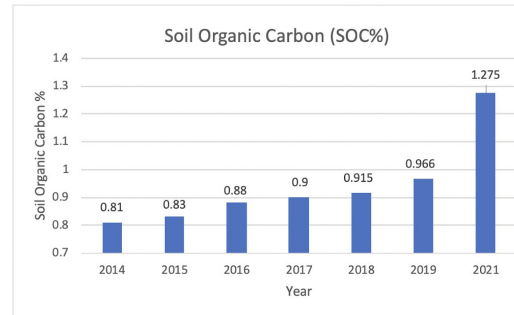
New Mexico State University



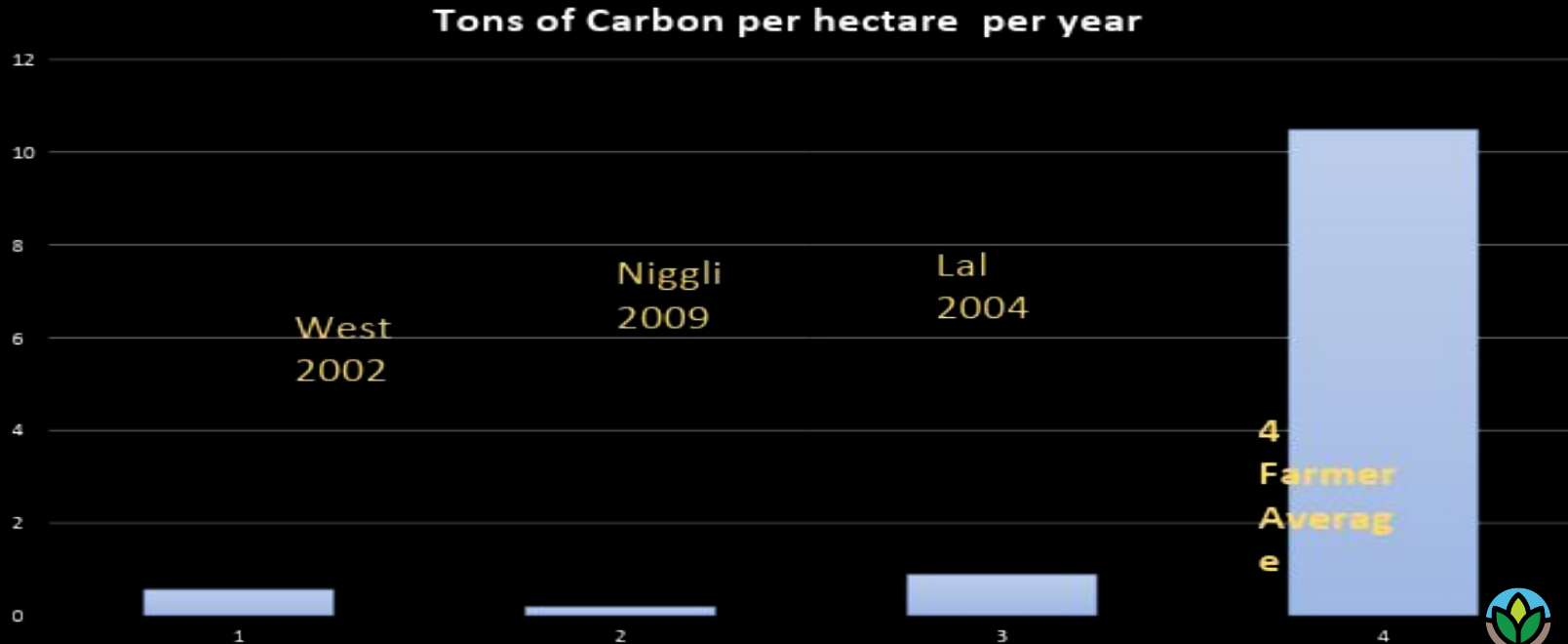
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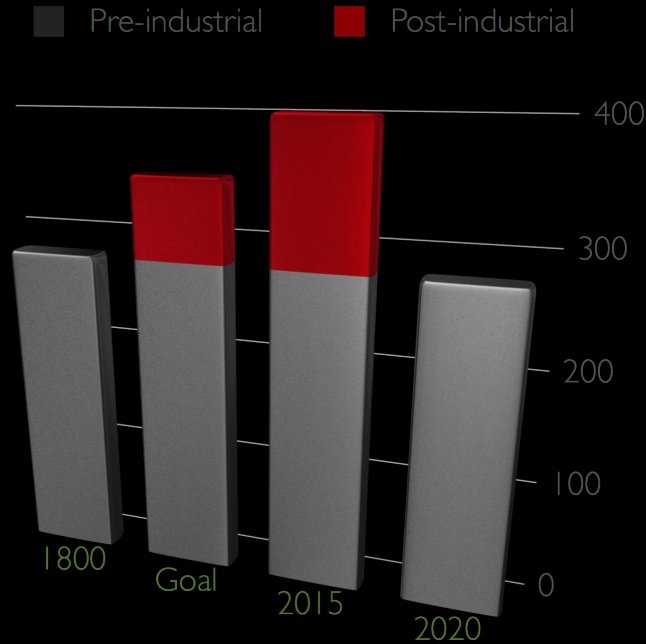
Figure 3: Change in soil organic carbon (SOC%) from 2015 to 2019 during adoption of no-till farming practices and after adoption of no-till farming practices + multispecies cover crops from 2019 to 2021.



Regenerative Agriculture = Future



Regenerative Agriculture Can Get us Here



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**THE
CARBON
UNDERGROUND**



**SOIL CARBON
ACCRUAL PROJECT**



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The California Climate Policy Summit 2022

Accelerating action for an equitable
climate-safe future





Community.



Mission

To inspire, engage and support people to take personal responsibility for the urban environment, making it safe, healthy, fun, sustainable, and resilient; and to share the process as a model for the world.

Our Mission is Centered on People





Equity and Environmental Justice

Mental and Physical Health



NOSE/MOUTH: outdoor activities can develop one's taste and smell through exposure to different types of scents.

EYES: people who spend more time outdoors are not as likely to need glasses for nearsightedness.

HEART: having contact with nature positively impacts blood pressure and cholesterol, lowers heart rate, and reduces the stress hormone cortisol.

LUNGS: trees clean the air through absorbing carbon dioxide and producing oxygen, lowering the rates of asthma within communities with more trees and access to nature.

TOUCH: children who play outdoors are more tolerating of touch experiences, having more exposure to natural elements and changing environments.

ILLNESS: patients with views of natural settings from their hospital windows heal faster with less complications and take fewer pain perescription doses.

MENTAL HEALTH: as minimal as five hours a month (two 40-minute walks per week) in nature can help prevent mild depression.

BALANCE: being outdoors on varying terrain challenges the legs, ankles, and feet, developing muscle strength for stability.

Benefits of Trees

Heat Reduction

Trees cool the city by up to 10°F by shading homes and streets, breaking up urban “heat islands” and releasing water vapor into the air through their leaves.

Water Retention

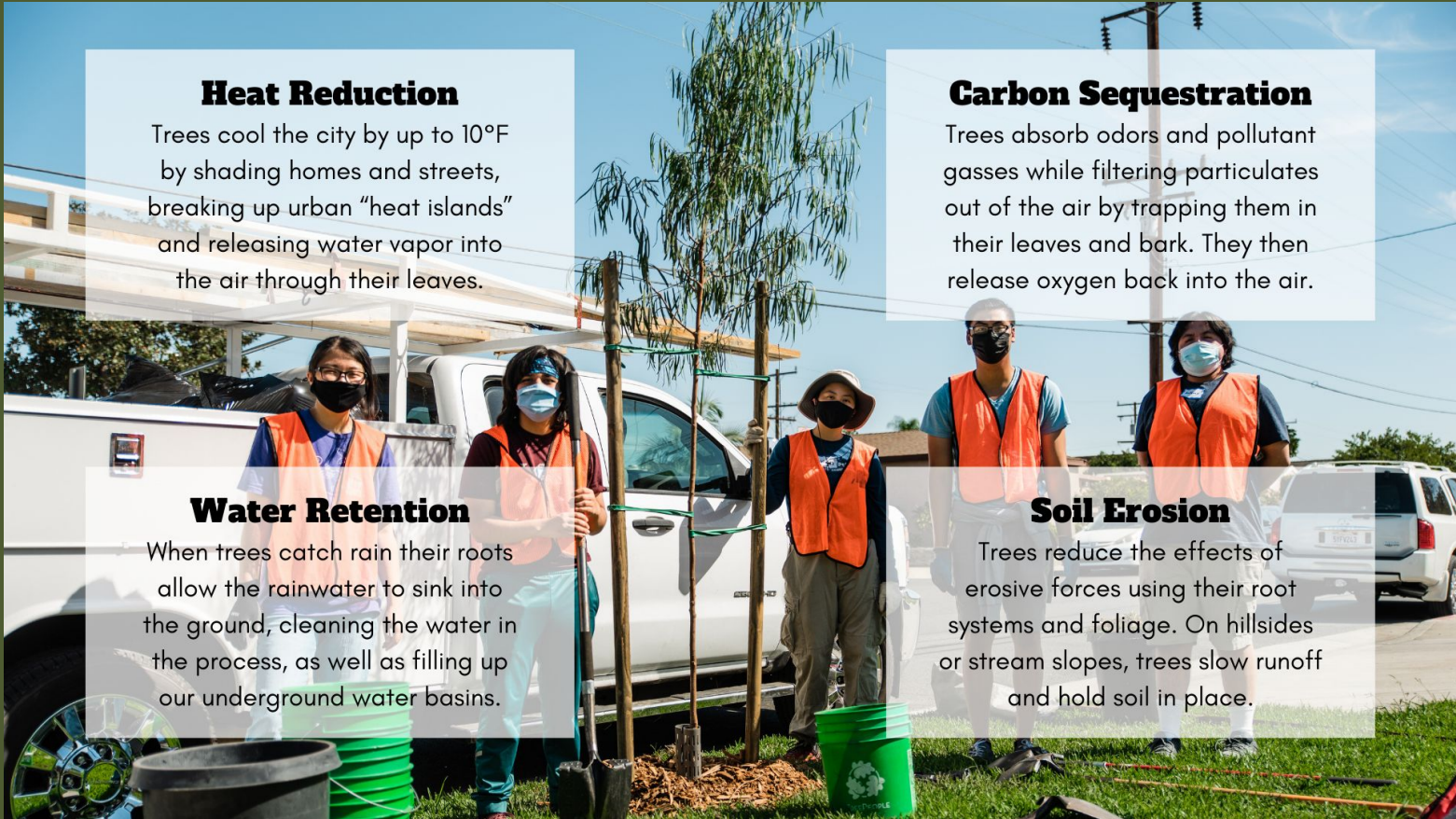
When trees catch rain their roots allow the rainwater to sink into the ground, cleaning the water in the process, as well as filling up our underground water basins.

Carbon Sequestration

Trees absorb odors and pollutant gasses while filtering particulates out of the air by trapping them in their leaves and bark. They then release oxygen back into the air.

Soil Erosion

Trees reduce the effects of erosive forces using their root systems and foliage. On hillsides or stream slopes, trees slow runoff and hold soil in place.



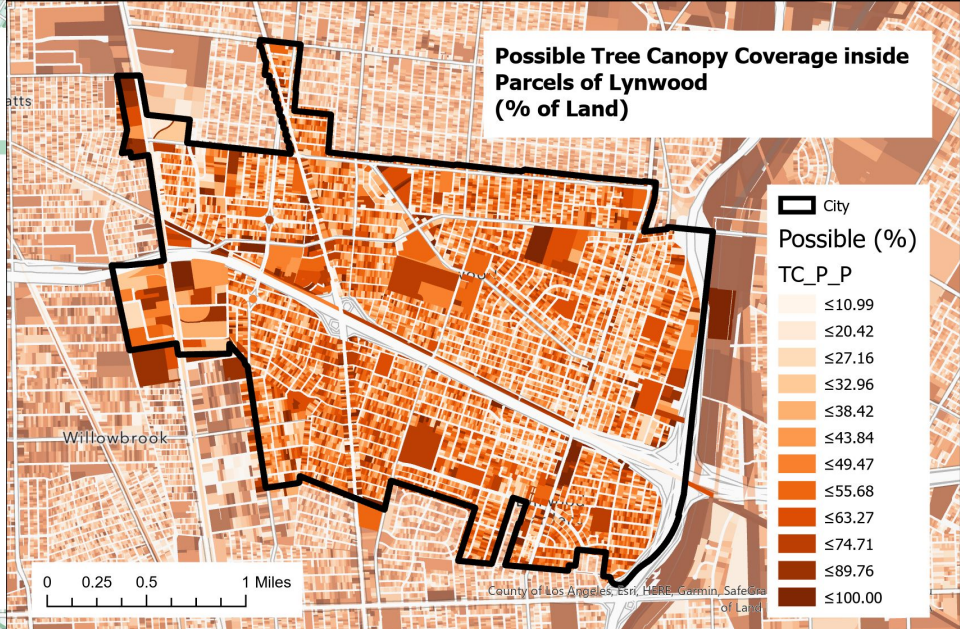
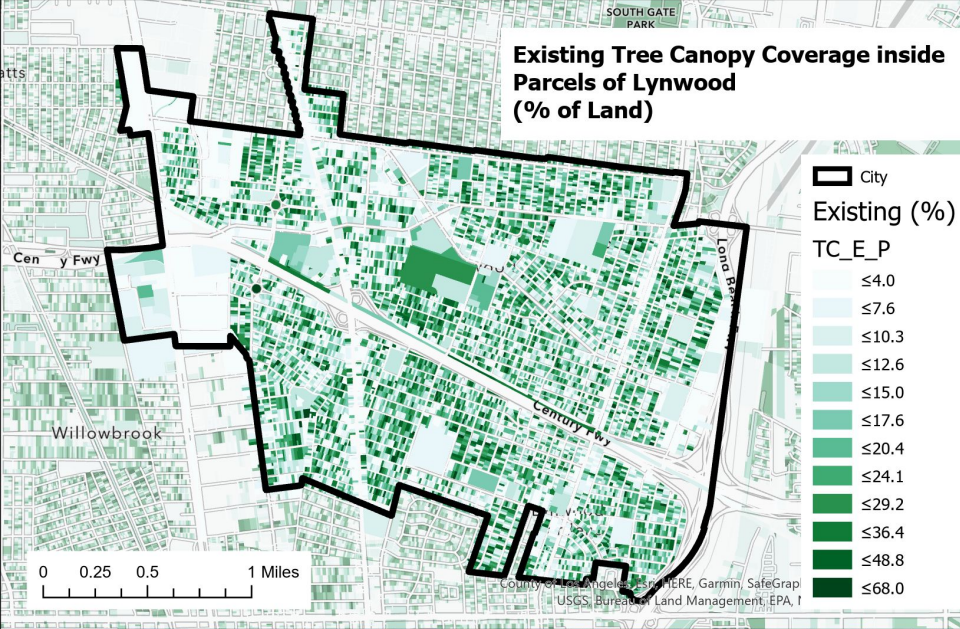
SOUTH LA

STUDIO CITY

12% CANOPY COVER

25% CANOPY COVER



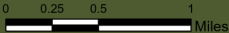
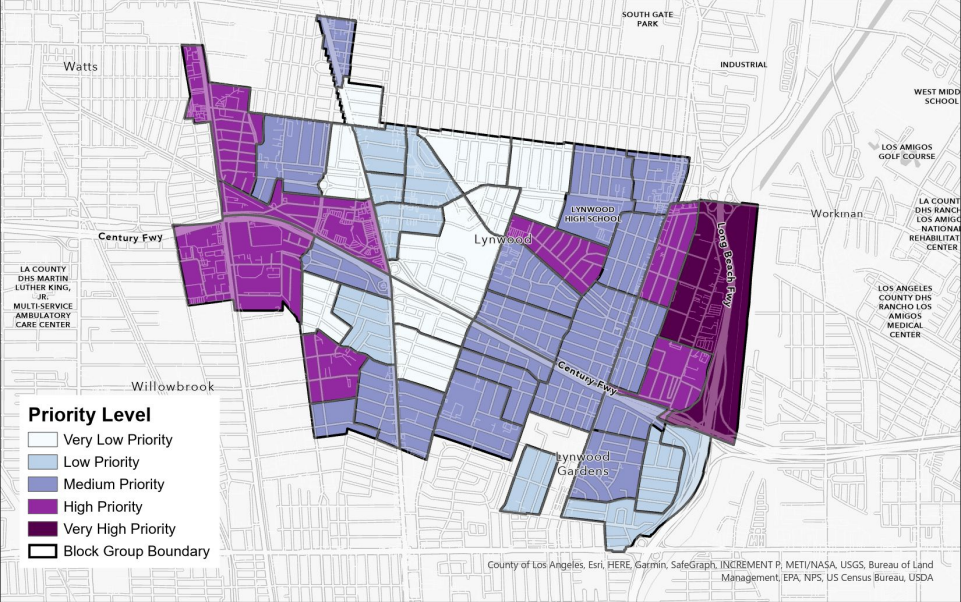
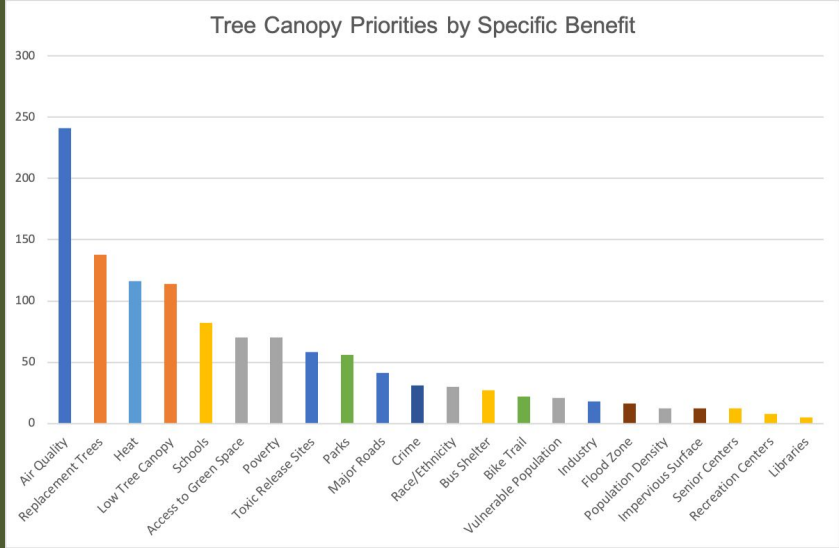


	Mean	Median	Min	Max
Los Angeles County	18%	16%	0%	84%
Gateway Cities	15%	15%	0%	46%
City of Lynwood	16%	16%	8%	23%
City of Commerce	8%	8%	3%	16%

	Mean	Median	Min	Max
Los Angeles County	43%	42%	16%	100%
Gateway Cities	44%	43%	21%	100%
City of Lynwood	41%	42%	31%	55%
City of Commerce	46%	45%	36%	52%

Tree Prioritization

Tree Canopy Priorities by Specific Benefit



Credits: Los Angeles County GIS Portal, Esri Living Atlas, U.S. Census American Community Survey, SCAG Open GIS Data Portal, and NASA SEDAC

Tree Planting Priority Level for the City of Lynwood at Block Group Level

Trees Need People

- Local community involvement, investment, and support are crucial to increasing urban tree canopy and is key to our model.
- Research shows that trees planted without community involvement will have a significantly higher probability of dying.



Bright Spots

- Southeast LA
- South LA
- Northeast San Fernando Valley
- San Gabriel Valley
- Riverside
- San Bernardino



School Greening



Children without living schoolyards are less encouraged to learn about natural ecosystems.

Lack of trees and plants make pollutants stay in the air for longer.

Lack of green areas can decrease the ability for children to develop strength and balance.

Schoolyards that are covered with asphalt can discourage children from exploring and developing a love for nature.

Children are the most vulnerable to heat-related illnesses, including dehydration, heat illness, and potential death.

Unwelcoming schoolyards limit connection between the school and the surrounding community.

Asphalt can be 40-60 degrees hotter than the surrounding air temperature.

Children without green schoolyards are more prone to asthma.

School Greening



Living schoolyards strengthen attention and reduce behavior problems.

Higher levels of tree canopy are related to higher school-level reading scores.

Exposure to nature is linked to decreased levels of stress, anxiety, and aggression.

The level of greenness within a community can predict the number of crimes that have occurred, even after all variables are controlled for.

The more natural of a setting, the more likely children diagnosed with ADHD are able to concentrate.

More people are observed in green spaces than in barren spaces, decreasing loneliness.

Garden-based learning is associated with improved academic performance, self-confidence, and self-esteem.

Children's concentration, coordination, and social play are positively influenced by playing in natural spaces.

WaterTalks



Youth Power



Nursery

- Producing roughly 10,000 native trees and plants each year to restore our mountains.



Mountain Restoration and Fire Resilience



Movement Building 2021

40,000 Youth

80,000 Trees and Plants Planted
and Cared For

350,000 Directly Engaged

3.5 Million Web and Social Media





TreePeople

Thank you!