



Sunnyvale

# State of the Urban Forest

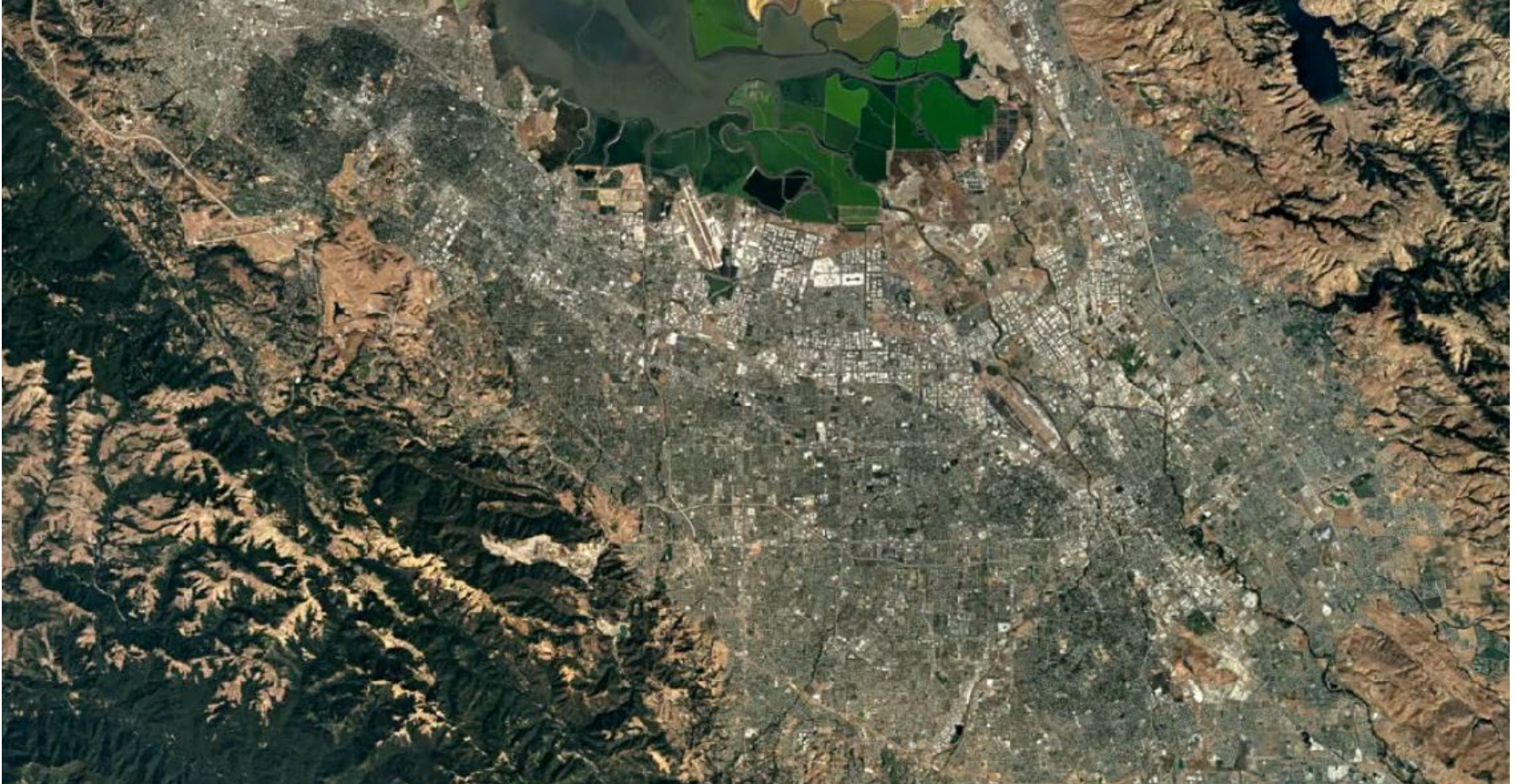
Travis Rios  
September 9, 2025





# Current Climate in Sunnyvale

## Satellite Image 1984





# Current Climate in Sunnyvale

## Satellite Image 2022



# What is the Urban Heat Island Index (UHI)?

- CalEPA: Urban Heat Island Index for California

- ♦ Interactive maps based on its 2015 study, "Creating and Mapping an Urban Heat Island Index for California"
- ♦ A degree-hour = temperature difference (urban vs. rural, or actual vs. baseline) × 1 hour
- ♦ If Sunnyvale is **2°F hotter** than rural surroundings for 12 hours → 24 degree-hours
- ♦ Sunnyvale Ranges from 5-19 **DegHourDay**
- ♦ San Jose Ranges from 5-50 **DegHourDay**
- ♦ Cupertino Ranges 20-30 **DegHourDay**
- ♦ Milpitas averages 121 **DegHourDay**

High **DegHourDay** values = longer, stronger heat stress → more risk for vulnerable populations.



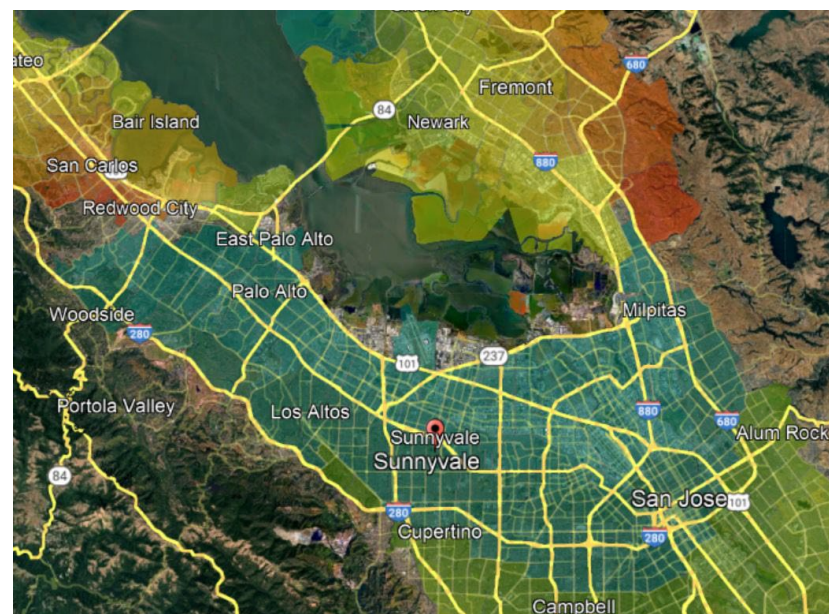
# UHI Heat Index Map - Sunnyvale

CalEPA

## Sunnyvale UHI



## Surrounding Area



# Climate Change and New Pests

## ❖ Heat Stress

- ❖ 1990 - Average 7 days over 90°F
- ❖ 2050 – Expected average 19 days over 90°F

## ❖ Extreme Weather Events

- ❖ Fluctuations in weather; heavy rain/wind and intense heat
- ❖ Rapid growth increase and poor maintenance will increase potential for failures

## ❖ Drought & Water Scarcity

- ❖ Weakens root systems and increases susceptibility to secondary pests and pathogens

## ❖ Potential New Pests

- ❖ PSHB – Polyphagous Shothole Borer
  - ❖ Local cases in Santa Cruz and San Jose
- ❖ GSOB – Goldspotted Oak Borer
  - ❖ Localized to Southern California
- ❖ EAB – Emerald Ash Borer
  - ❖ (NOT in CA, yet)

# Adaptation in Changing Environment

## LIQUID Trees



## Bioplastics / Algae Bricks



# Upcoming Projects & Study Issues

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## ❖ Street Tree Inventory

- ❖ Provide accurate tree count for Street Trees and Park Trees
- ❖ Allow for improved budgeting
- ❖ Aid in future development of the Urban Forest

## ❖ Tree Re-population through an Equity Lens

- ❖ Equitable Access to Nature
- ❖ Reducing Heat Island Index



# Community Involvement

## ❖ Knowledge is Power

- ❖ Understanding the value of the trees in our own gardens
  - ❖ Coast Live Oak with 43" DBH = \$16,550 in valuation
- ❖ Communicating with Neighbors about the value their trees provide
- ❖ Common Misconceptions
  - ❖ Tree bigger than a house is a risk - False
  - ❖ Tree near a home does not always lead to property damage - True
  - ❖ Not all Trees need to be pruned each year – True

## ❖ Maintain your Private Trees

- ❖ Maintenance is critical especially when a tree is young
- ❖ Improper maintenance leads to poor structure and failure

## ❖ Save the Giants

- ❖ The bigger the tree, the greater benefit to our community
- ❖ One large tree does the work of dozens of small ones

# Questions or Comments?

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