Carbon Stock Analysis Results

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

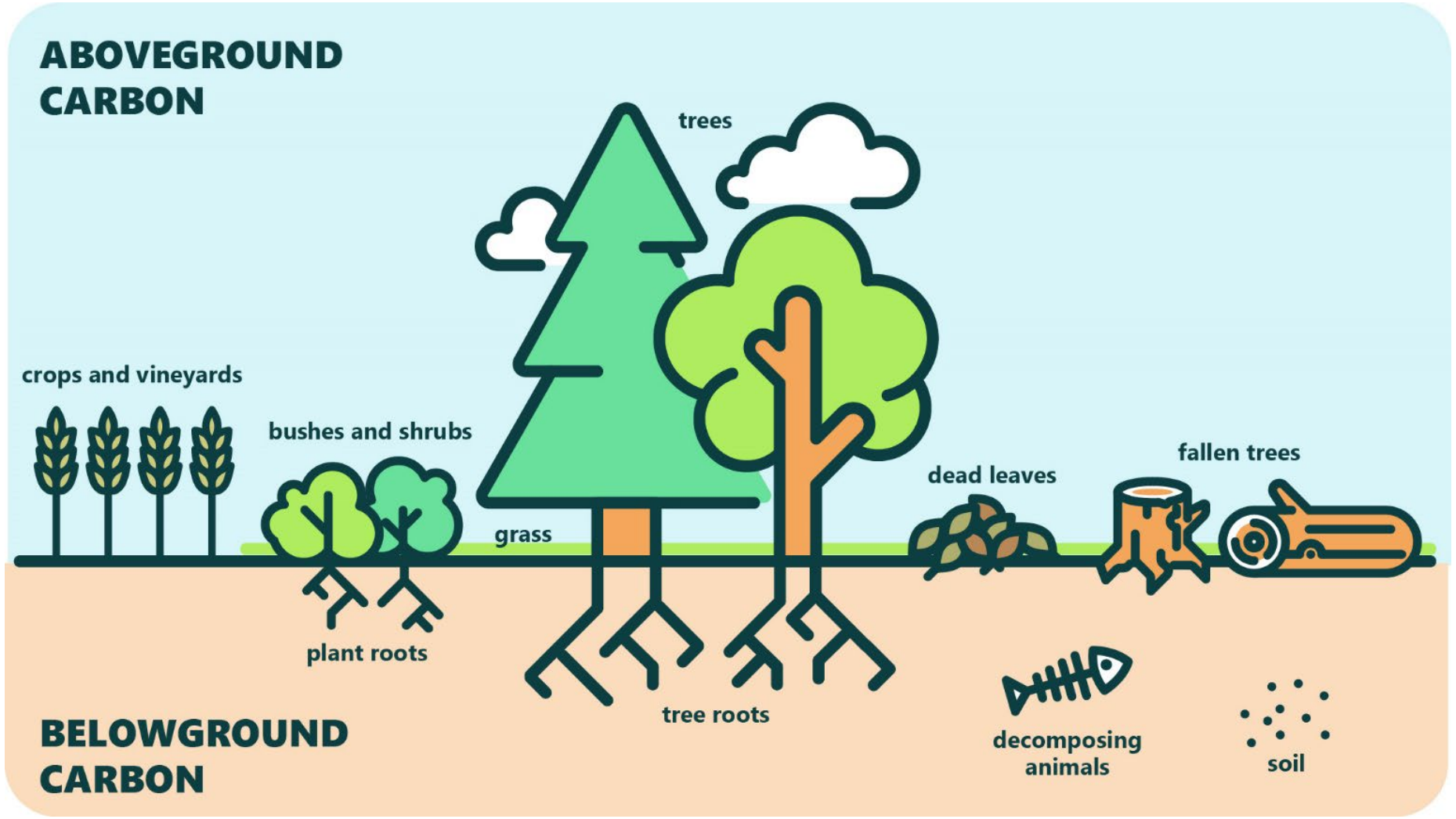
November 10, 2026

Carbon Stock and Carbon Sequestration

- **Carbon stock** refers to the total amount of carbon stored in natural and working lands at a specific point in time. It's measured in units of mass (tons of carbon).
- **Carbon sequestration** is the rate at which carbon is removed from the atmosphere and stored in these systems. It's measured as a rate (tons of carbon per year).

- SMUD's Feasibility Study will incorporate both carbon stock and carbon sequestration.

Carbon Stock Inventories

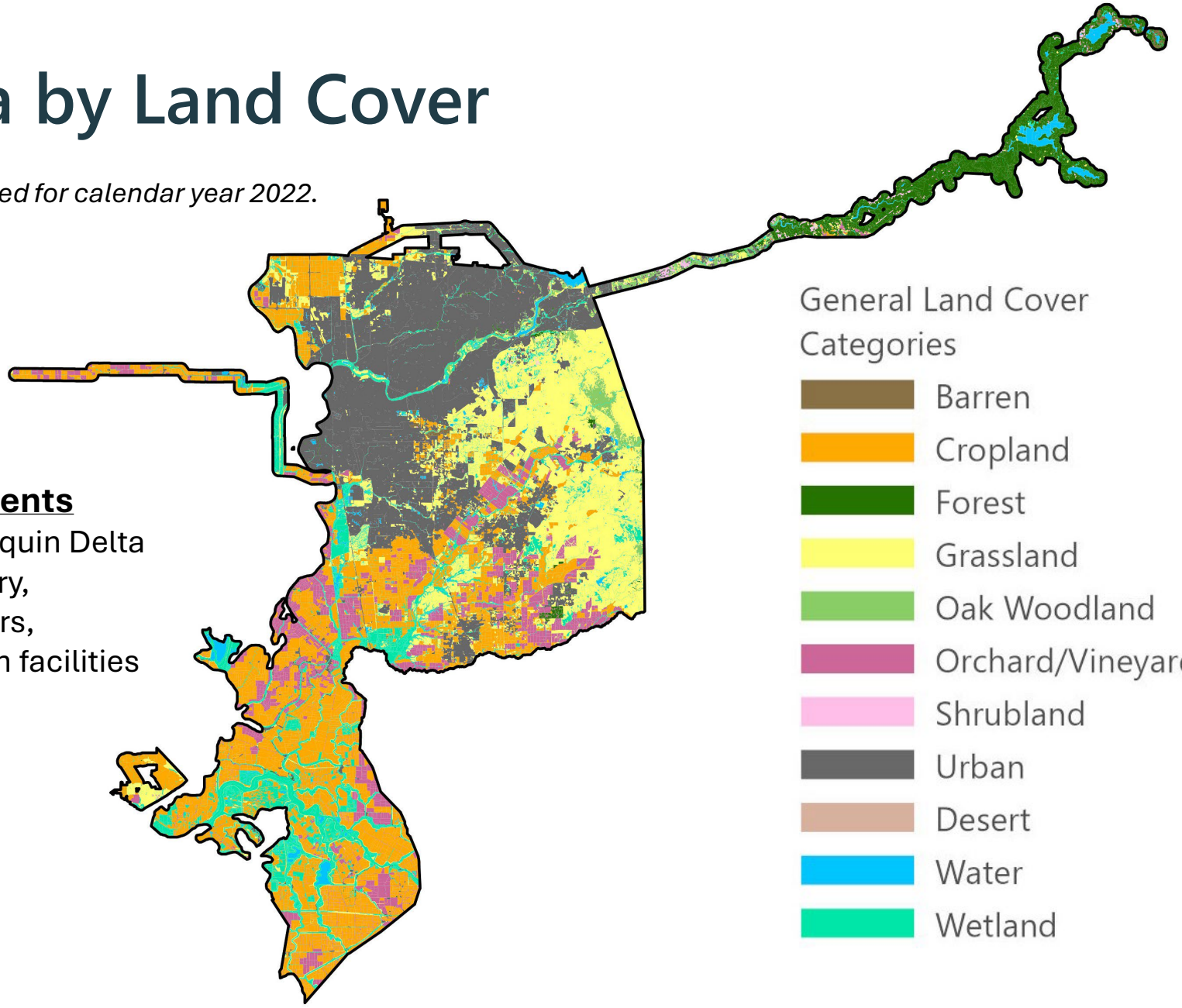


Study Area by Land Cover

Note: Results are presented for calendar year 2022.

Two distinct components

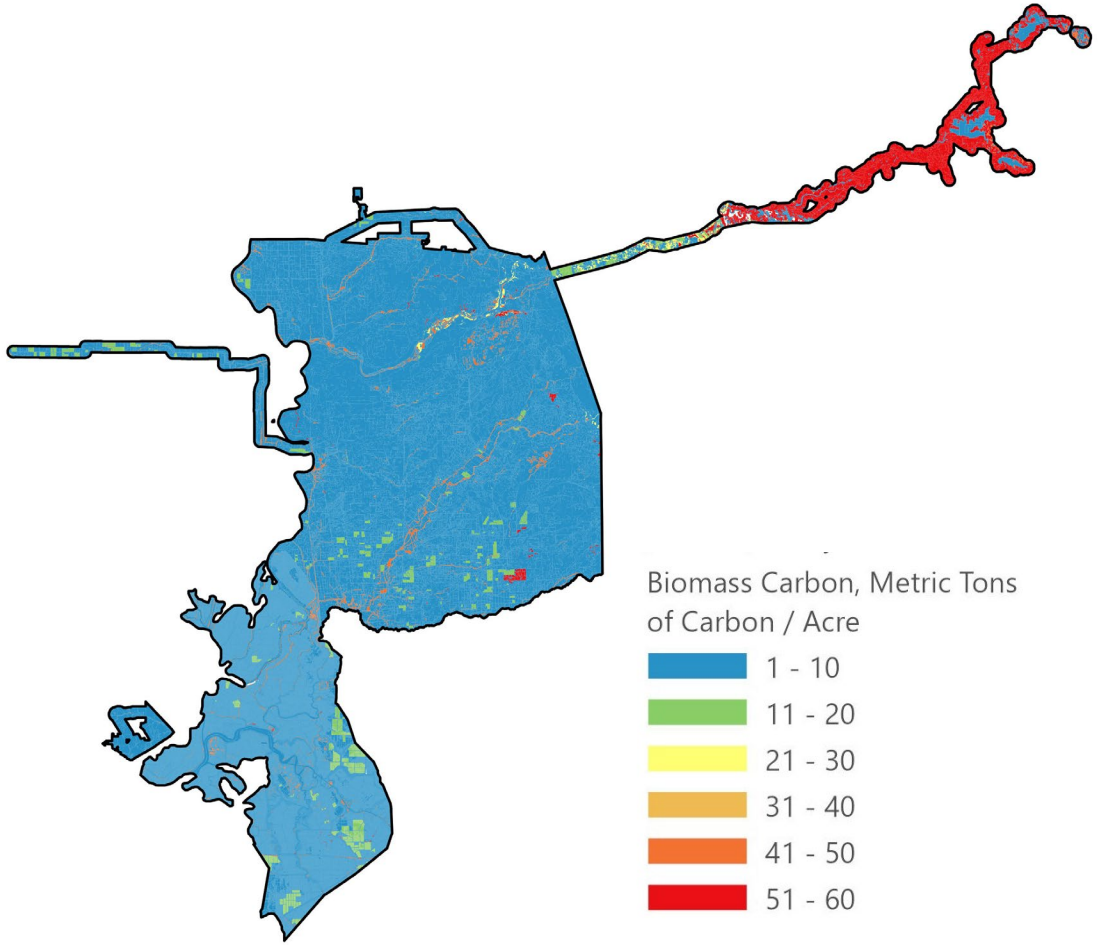
1. Sacramento-San Joaquin Delta
2. SMUD service territory, transmission corridors, renewable generation facilities

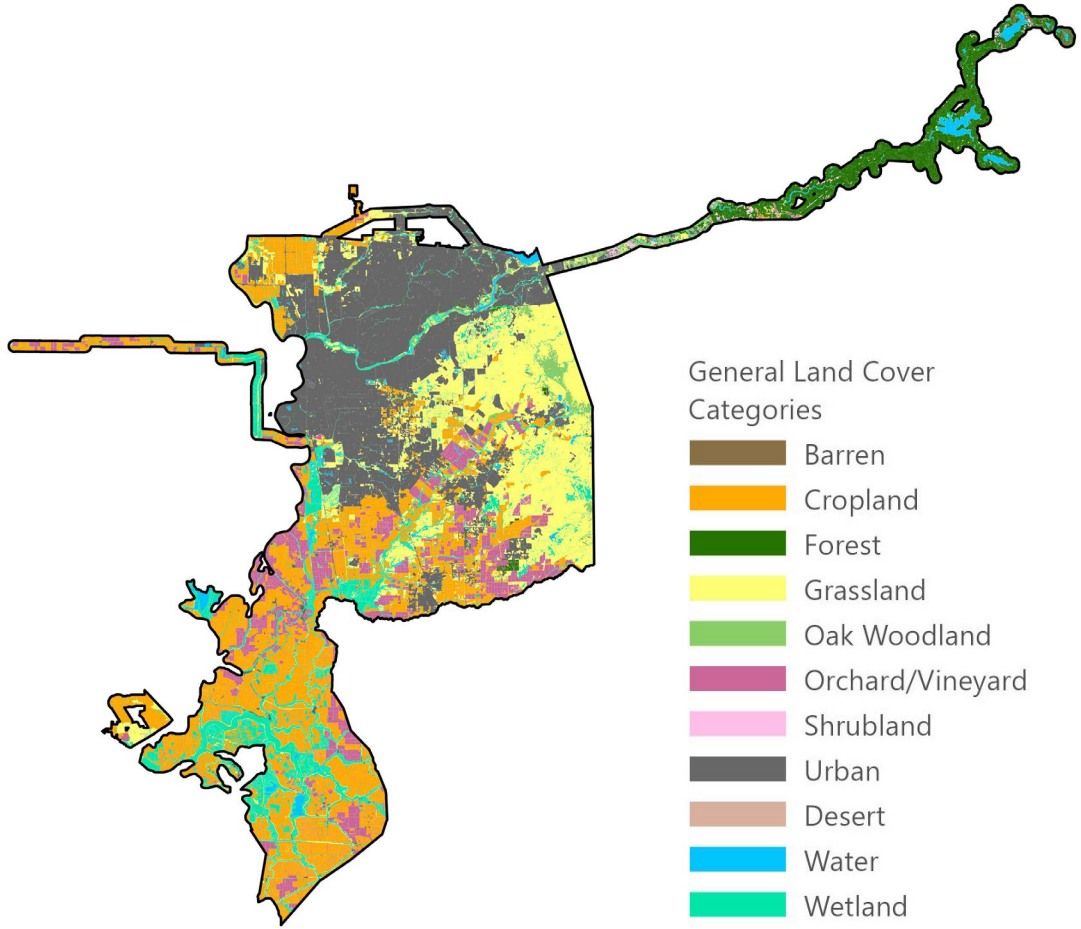


General Land Cover Categories	
Barren	<1%
Cropland	26%
Forest	6%
Grassland	18%
Oak Woodland	2%
Orchard/Vineyard	9%
Shrubland	<1%
Urban	26%
Desert	<1%
Water	2%
Wetland	11%

Biomass Carbon Stock in Study Area

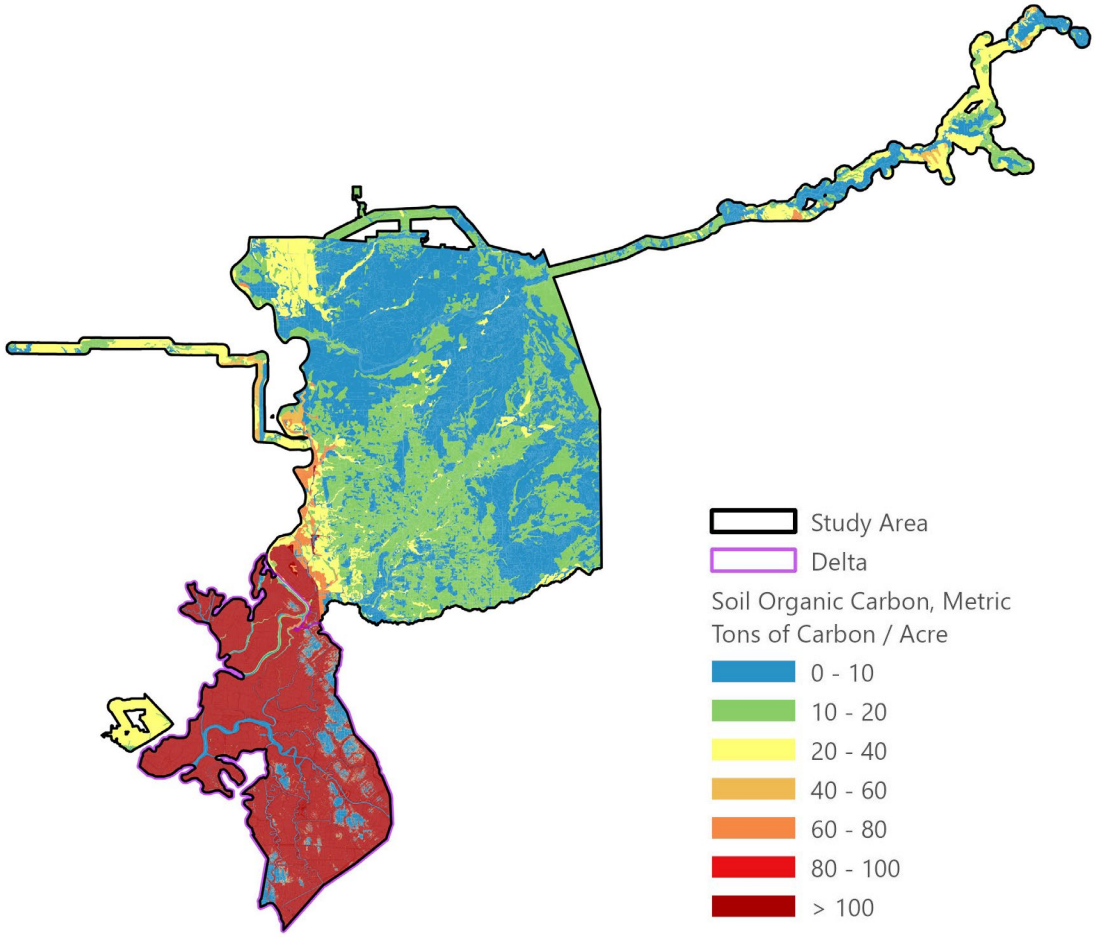
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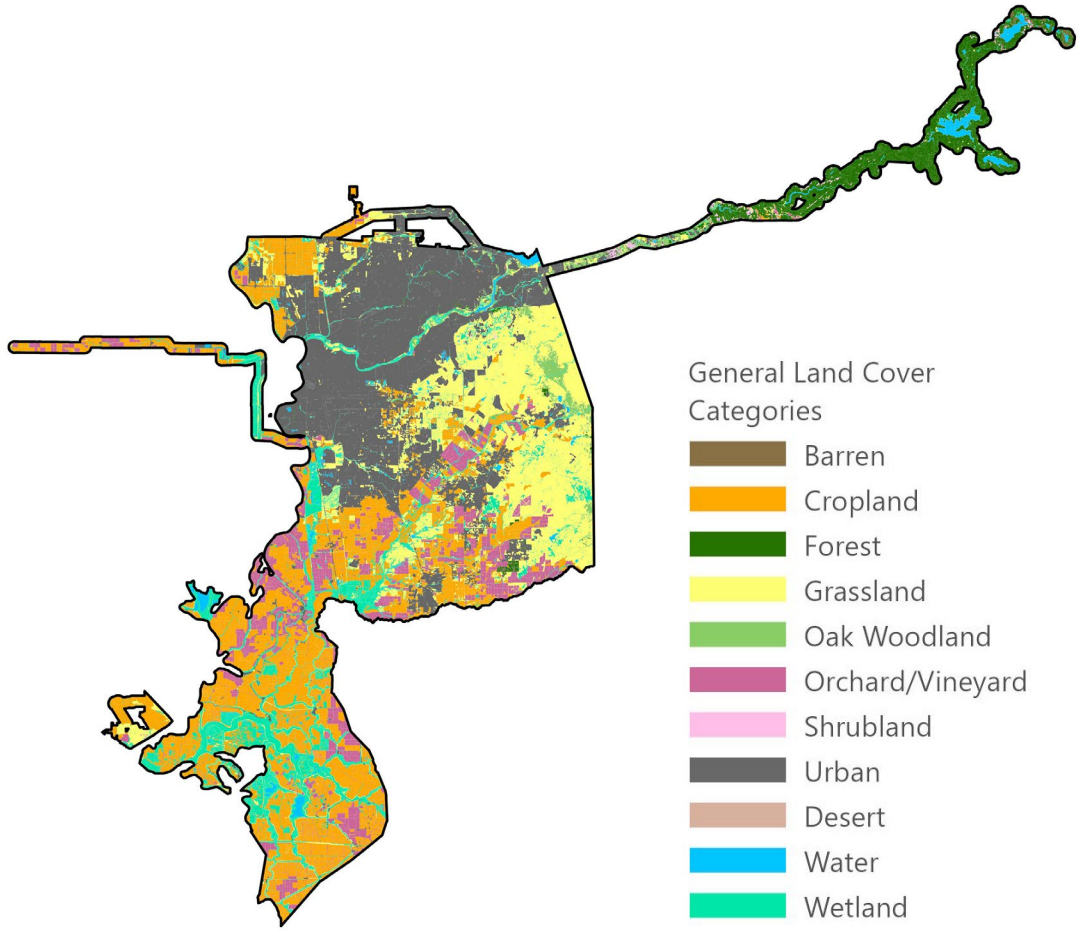




Soil Carbon Stock in Study Area

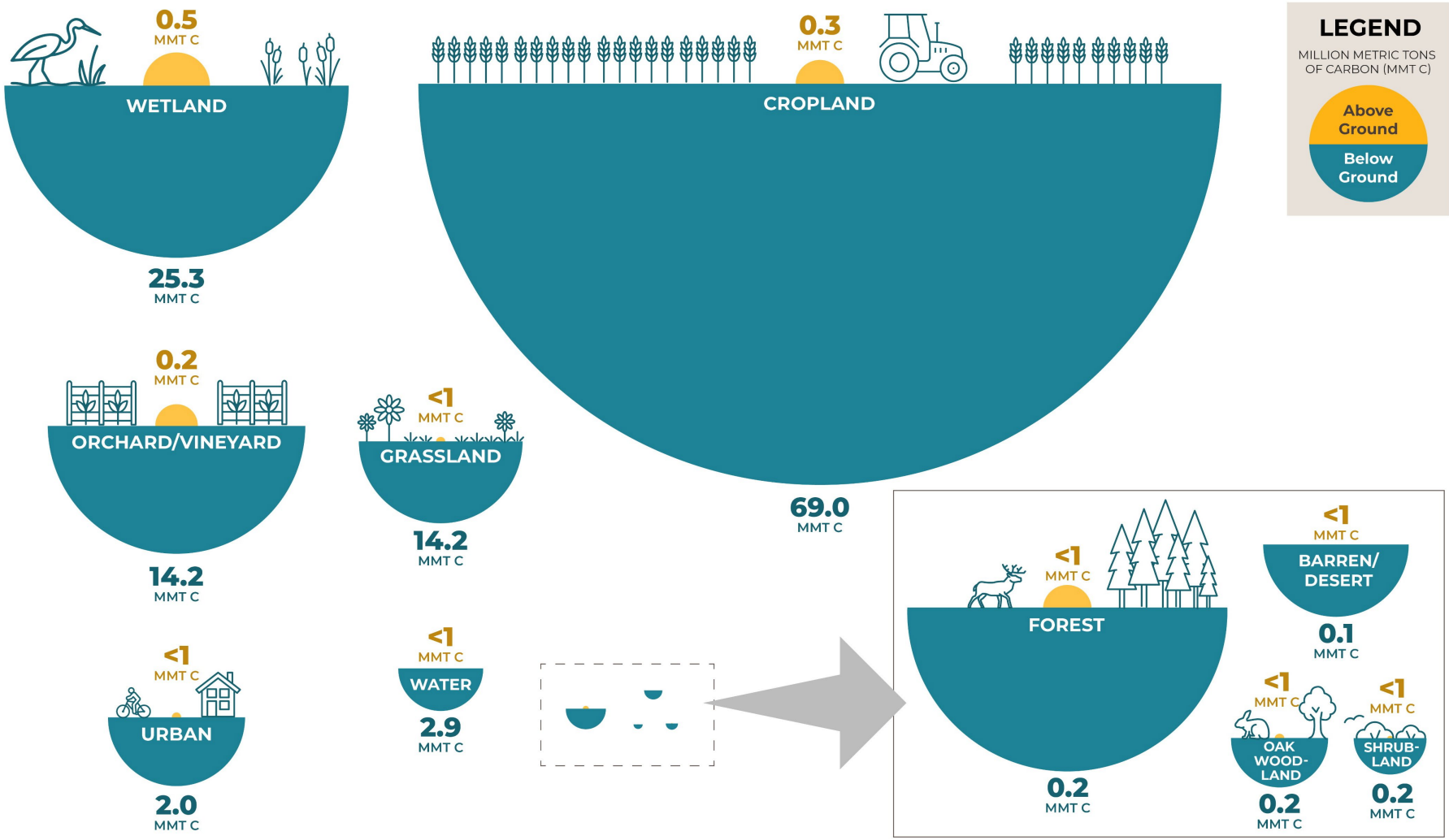
Note: Results are presented for calendar year 2022.





Total Carbon Stock in Sacramento-San Joaquin Delta

Note: Results are presented for calendar year 2022.

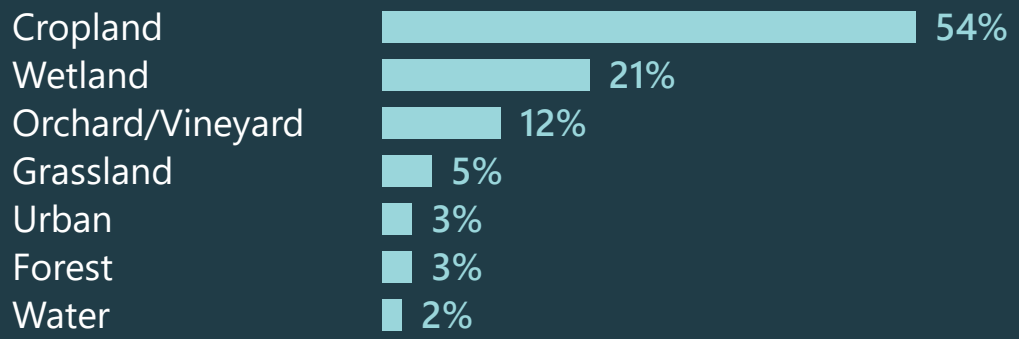


Carbon Stock in Sacramento-San Joaquin Delta

120M metric tons of carbon
stored in the Delta

86% of all study-area carbon, reported separately from SMUD's territory and corridors

WHERE IT IS



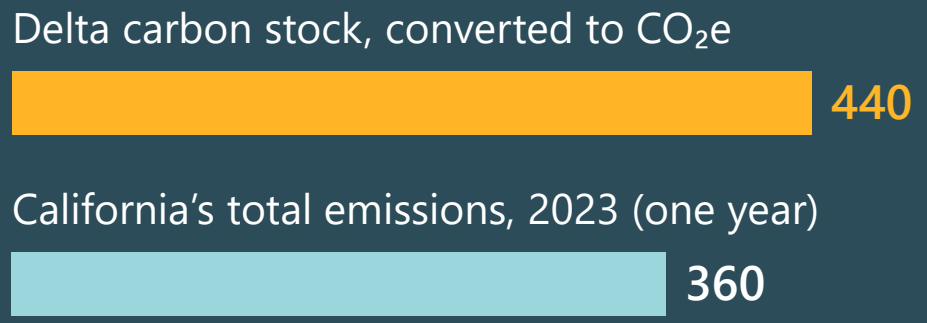
WHAT IT IS



99% Soil, incl. peat up to 30 ft deep — Biomass **1%**

IN CONTEXT

Delta carbon stock vs. California's annual emissions, MMT CO_2e



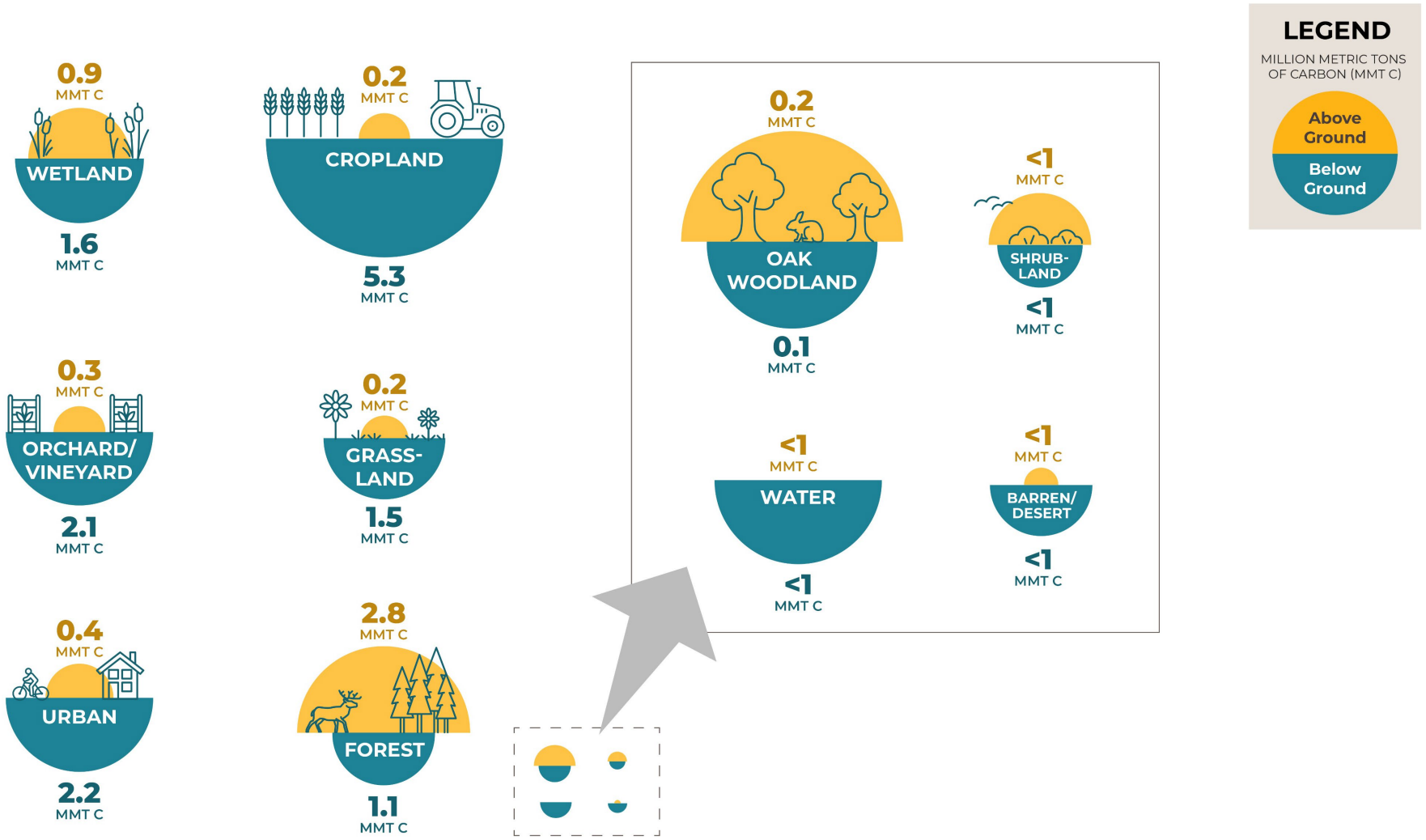
120 MMT C = **440 MMT CO_2e** if released

That's **~1.2 years** of all California emissions

C = carbon; CO_2e = carbon dioxide equivalent; MMT = million metric tons

Total Carbon Stock in Study Area without Delta

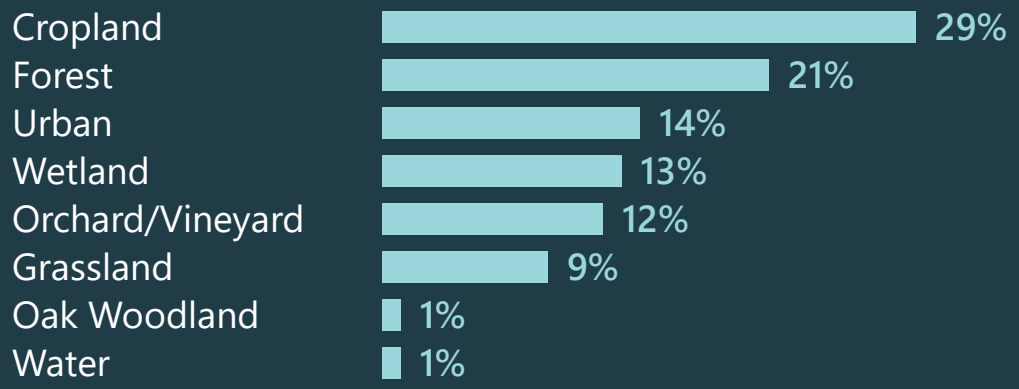
Note: Results are presented for calendar year 2022.



Carbon Stock in Study Area without Delta

19M metric tons of carbon
stored in the non-Delta study area

WHERE IT IS



WHAT IT IS



73% Soil Biomass 27%

IN CONTEXT

Non-Delta carbon stock vs. SMUD gas plants, MMT CO_2e

Non-Delta carbon stock, converted to CO_2e



SMUD net generation + power purchases, 2025



19 MMT C = 70 MMT CO_2e if released

That's ~29 years of emissions from SMUD's net generation + power purchases

The non-Delta area holds 1/10 of the carbon on 77% of the acreage

C = carbon; CO_2e = carbon dioxide equivalent; MMT = million metric tons

Achieving the Scoping Plan Scenario Statewide

WHAT IS THE SCOPING PLAN?

California's climate action plan to reach **carbon neutrality by 2045**, prepared by CARB. It models GHG emissions and carbon stock from natural and working lands. We compared two of its forecast scenarios for this study.

BUSINESS-AS-USUAL (BAU)

Today's land management continues

- Existing (2001–2014) practices continue through 2045
- Includes climate impacts such as wildfire and drought, and their effect on carbon stock

SCOPING PLAN SCENARIO

Statewide land management actions

- Same climate impacts, plus restoration-first actions
- Lower wildfire risk; healthier forests, grasslands, soils
- Long-term carbon sequestration, more stable stocks

STATEWIDE ACTIONS MODELED IN THE SCOPING PLAN SCENARIO (ANNUAL TARGETS UNLESS NOTED)

60,000
acres of Delta restoration, total by 2045

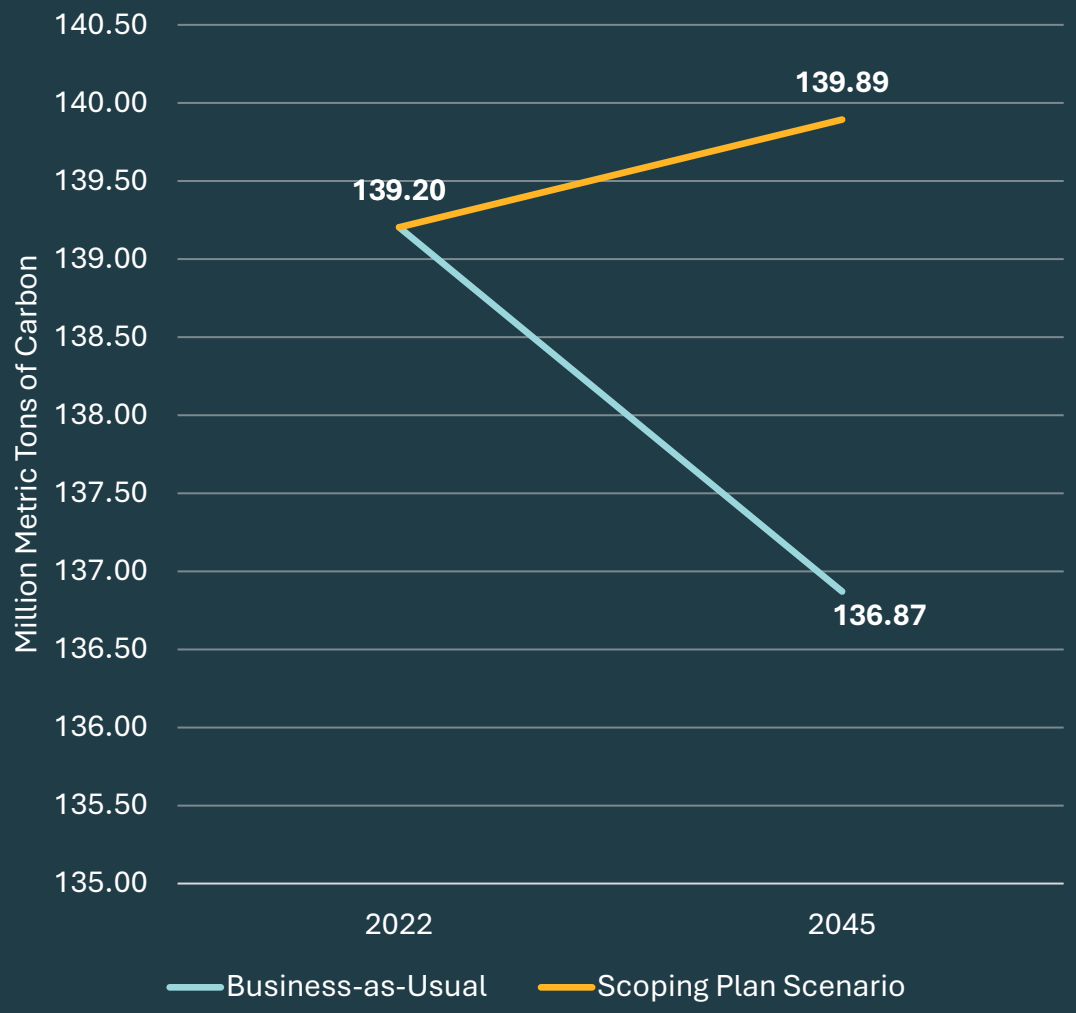
200%
annual increase in urban forest investments

150,000
acres of regenerative farming

2.3M
acres of vegetative fuel reduction and restoration

50,000
properties with defensible space near wildlands

Results: Carbon Stock Forecasts in Study Area



Business-as-Usual Scenario

- Existing (2001-2014) land management practices continue
- Study area **loses** 2.3M metric tons of carbon
- Equivalent to emitting 8.4 MMT CO_2e

Scoping Plan Scenario

- Achieves statewide carbon neutrality
- Study area **gains** 0.7M metric tons of carbon