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Nurture soil to sequester carbon



ReScape Principle: **Nurture Soil**

Soils are living ecosystems and when landscape practices allow the soil food web to thrive it can filter pollution, store water, provide plant nutrients, and help plants resist pests naturally.

✘ Problem

Urban soils have often been compacted, eroded, and depleted by conventional building and landscaping practices such as site grading, tilling, and using synthetic fertilizers and pesticides.

✔ Solution

Scientists see tremendous potential for slowing climate change by increasing the amount of carbon pulled from the atmosphere and stored in the soil, a process called carbon sequestration.

Research Shows:

- A one-time, half-inch application of compost can increase the amount of carbon stored in the soil by 1 ton per acre per year, and forecasts estimate that this benefit will continue for more than 30 years [2].
- If climate smart practices became widely adopted, 5.5 million tons of carbon dioxide could be stored in California soils, equivalent to taking over 1 million cars off the road [3].
- Every ton of additional carbon sequestered in the soil removes 3.67 tons of carbon dioxide from the atmosphere [4].
- If we increase soil carbon content by .4% a year it would offset the annual increase in atmospheric carbon dioxide [5].

“A mere 2% increase in the carbon content of the planet’s soils could offset 100% of all greenhouse gas emissions going into the atmosphere.”

Dr. Rattan Lal, Ohio State Soil Scientist



ReScape and PG&E are partnering to offer eight webinars about landscaping practices that address climate change, with a focus on carbon sequestration. This Speaker Series is a part of ReScape’s Climate Change Consortium Demonstration Projects to educate about climate change landscaping challenges and the solutions available using regenerative practices.



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Techniques to Nurture Soil + Increase Carbon Storage:

- **Apply compost to jump-start the conversion of atmospheric carbon into soil organic matter** and plant material. Compost improves conditions for beneficial microorganisms and increases water-holding capacity, which leads to greater plant growth and more carbon storage.
- **Minimize soil disturbance** from the damaging effects of compaction, erosion, and tillage. Compacted soils do not have adequate space for air and water, which means plants, fungi, and microbes can't thrive. Erosion and tilling expose soil carbon to oxygen which releases it into the atmosphere.
- **Keep soil covered** with mulch and/or plants. Mulch encourages microbial activity, helps soil retain moisture, and prevents erosion. Woody perennial plants store large amounts of carbon in their plant material, and their roots provide excellent habitat for beneficial microorganisms.
- **Avoid using synthetic fertilizers, pesticides, and herbicides.** Synthetic inputs harm the microorganisms that sequester carbon. Also, applications of synthetic nitrogen fertilizer can cause emissions of nitrous oxide, a greenhouse gas that is 300 times more potent than carbon dioxide.

ReScape is a non-profit organization that advocates for a regenerative, whole systems approach to landscaping education and advocacy, addressing earthscape climate change issues.

www.rescapeca.org

As a provider of gas and electricity to millions of Californians, **PG&E** strives to be an environmental leader, demonstrating this commitment through action. Doing so is integral to their ongoing efforts to provide safe, reliable, affordable and clean energy.

www.pge.com

➤ More Resources

Marin Carbon Project seeks to enhance carbon sequestration in rangeland, agricultural, and forest soils through applied research, demonstration and implementation.

Project Drawdown is a world-class research organization that reviews, analyzes, and identifies the most viable global climate solutions, and shares these findings with the world.

Climate Positive Design provides resources to designers of the built environment in order to help ensure the future of our planet by reducing carbon footprints and increasing sequestration.

Earth Institute, Columbia University blends research in the physical and social sciences, education and practical solutions to help guide the world onto a path toward sustainability.

Carbon Cycle Institute aims to stop and reverse global climate change by advancing science-based solutions that reduce atmospheric carbon while promoting environmental stewardship, social equity and economic sustainability.

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3. "Carbon Farming: CO2 Uptake by Soils." Climate Central, 9 August 2017, www.climatecentral.org/gallery/graphics/carbon-farming-co2-uptake-by-soils.
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