Land-Based Carbon Stewardship as a Natural Climate Solution

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March 16, 2022

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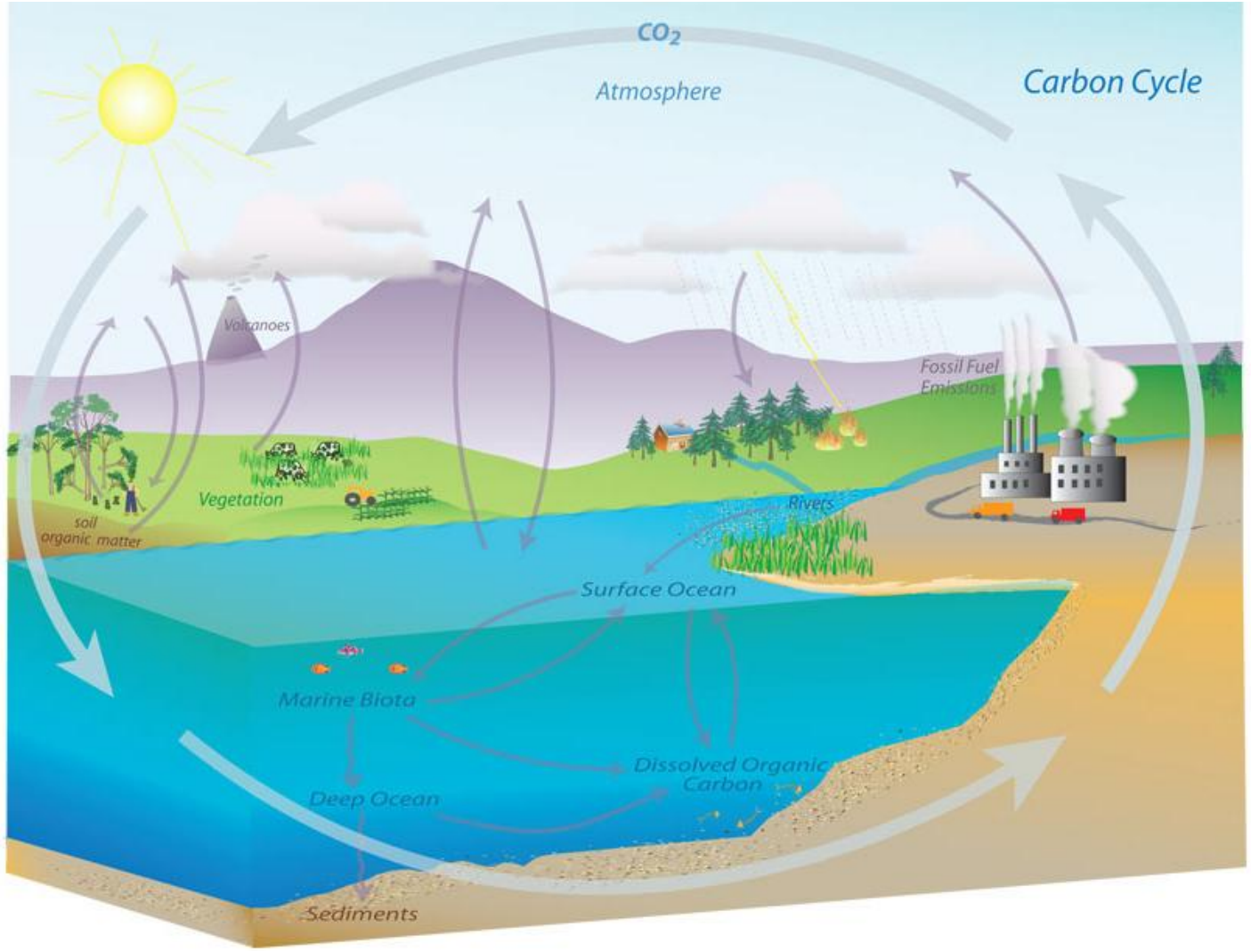
Conservation science
for a healthy planet.

Carbon is the basic building block of life



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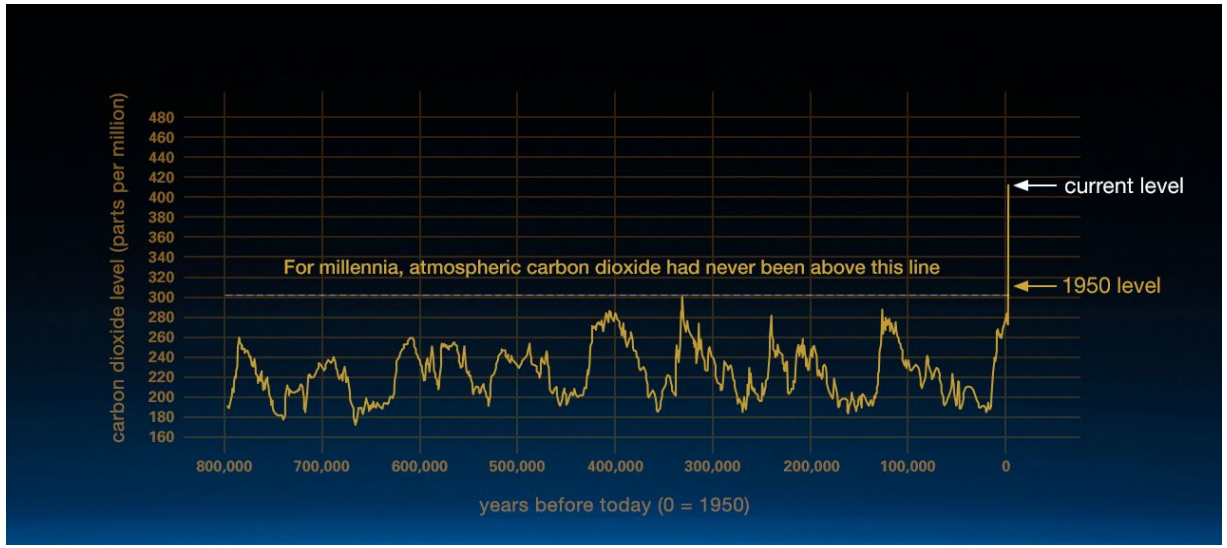
Rising in the air, lost from the land



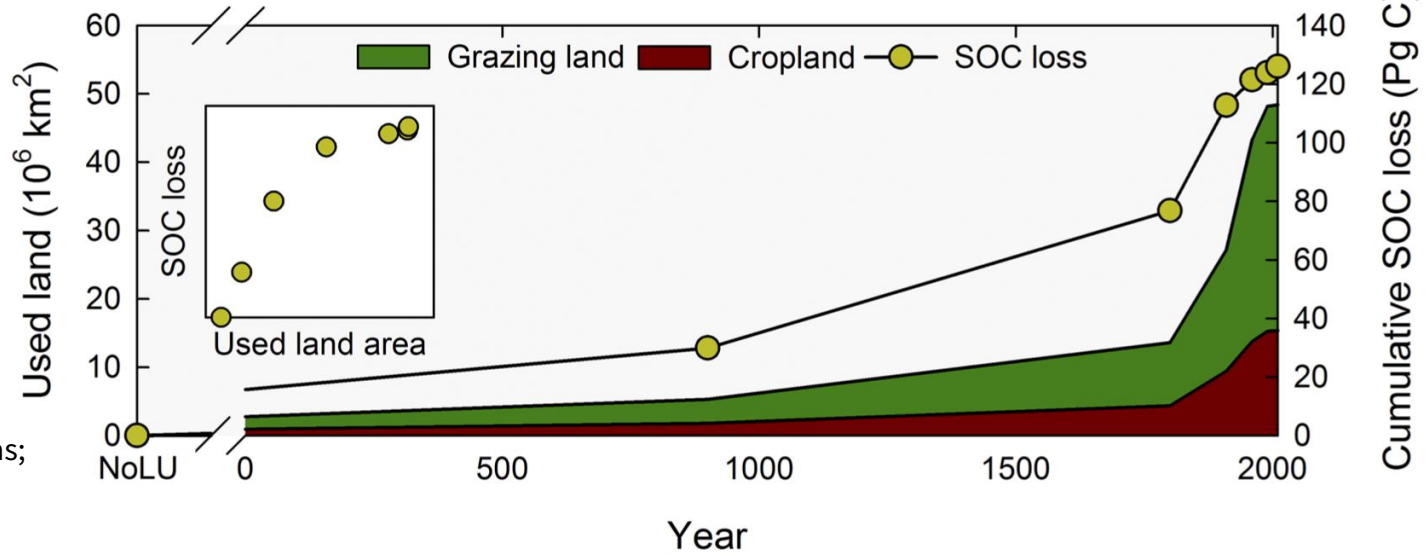


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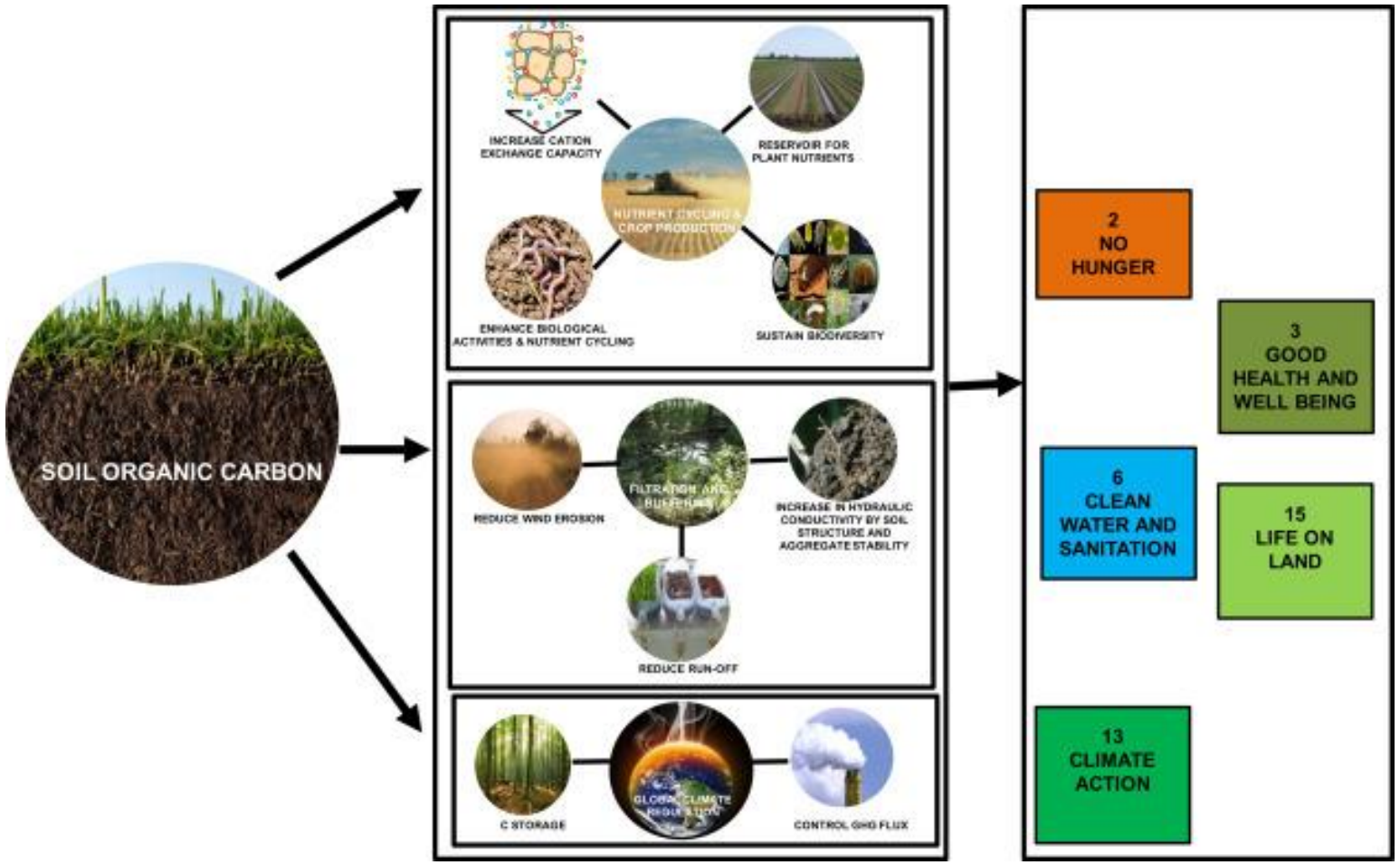
Photo credit: Global Soil Biodiversity Atlas;
Figures: Sanderman et al. 2017 PNAS;
climate.nasa.gov

Less carbon in the land = less food security, climate resiliency, and environmental sustainability



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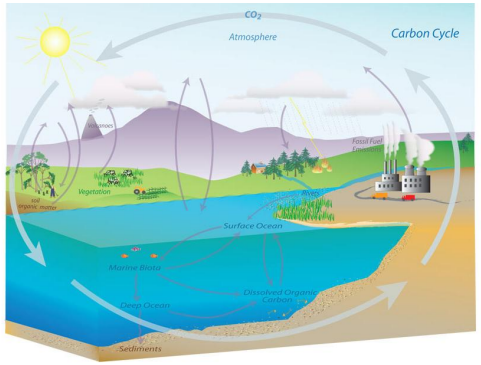
Trivedi et al. 2018

Luckily, the land can recapture carbon



Up to ⅔ can be recovered, although the magnitude of potential is debated*

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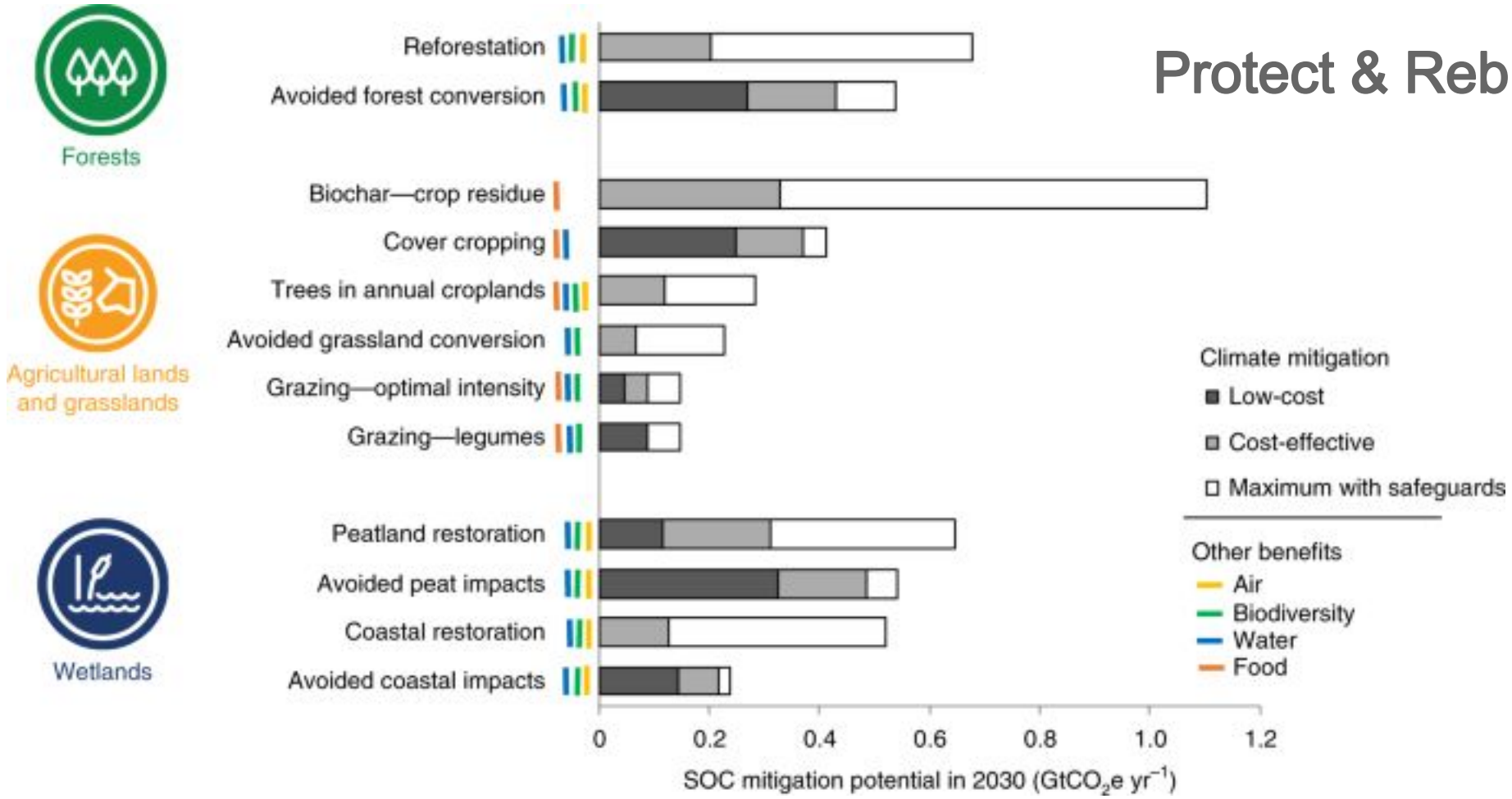
Photo credit: Global Soil Biodiversity Atlas; Livestock photo from Bill Milliot, TomKat Ranch; *Sanderman et al. 2017 PNAS, Bradford et al. 2019 Nature Sustainability

Natural climate solutions can offer one-third of the cost-effective mitigation needed by 2030, and soil carbon stewardship represents 25% of that potential



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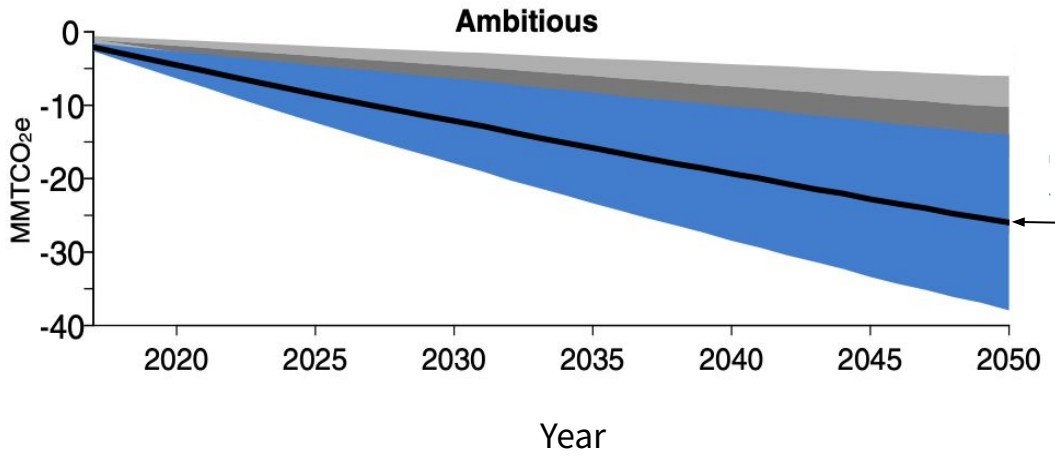
Griscom et al. 2017 PNAS; Bossio et al. 2020 Nature Sustainability

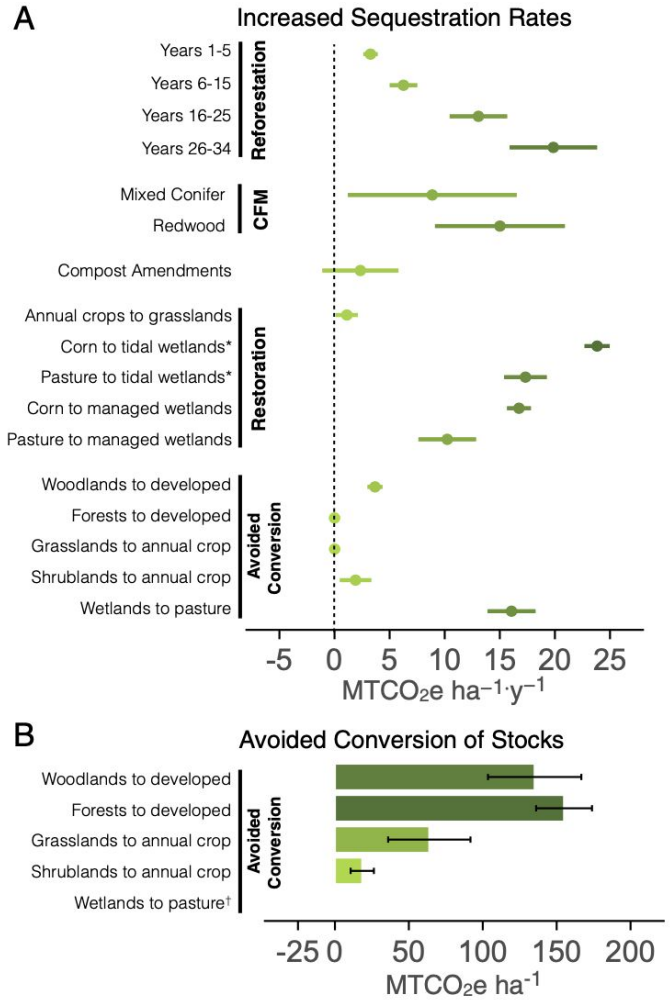
The importance of land-based carbon stewardship holds in California



Protect & Rebuild

Median GHG reductions

Cumulative reductions of up to 102 MMTCO2e are possible, equivalent to 12% of the cumulative reductions needed to meet 2030 target.



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Cameron et al. 2017 PNAS

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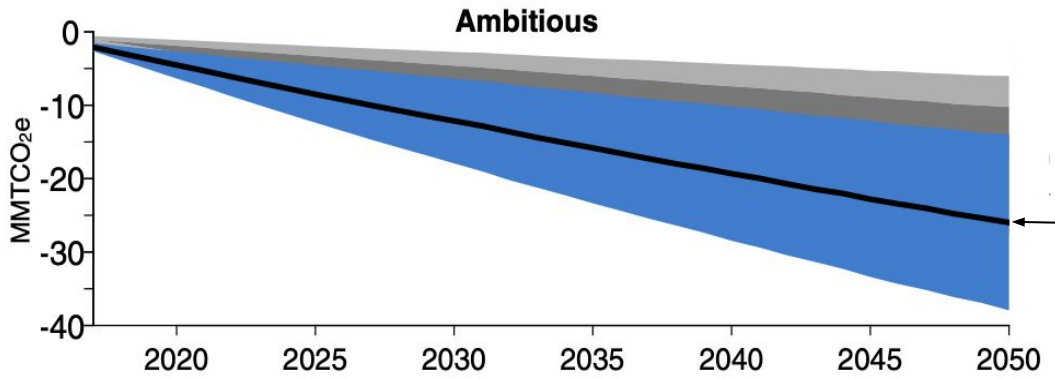

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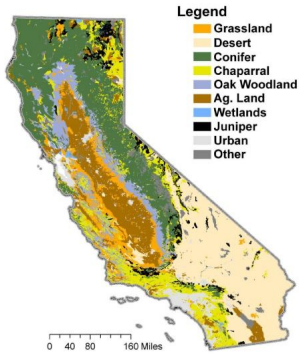
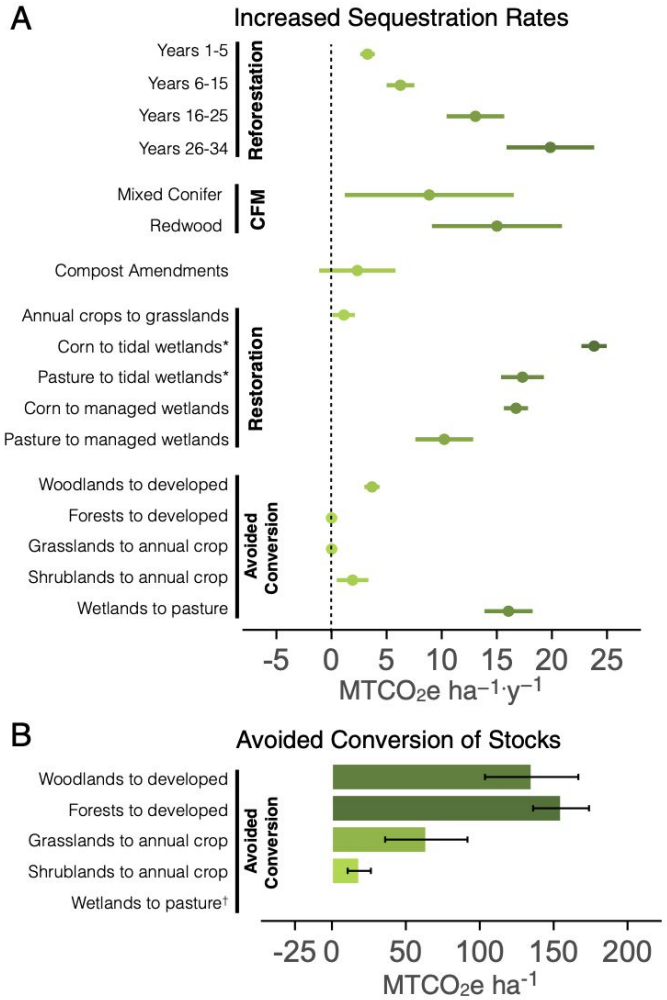


At scale!



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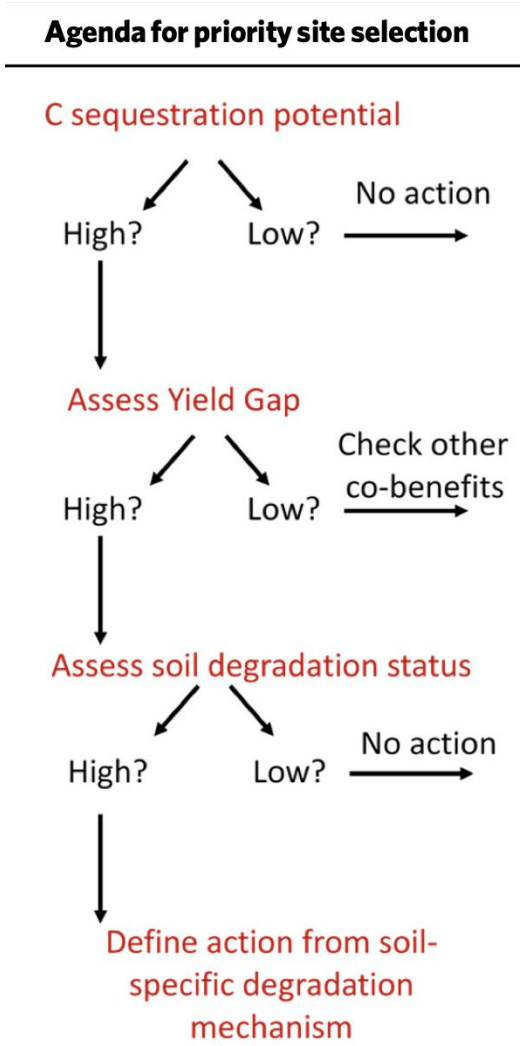
Cameron et al. 2017 PNAS; Stanton et al. 2018 Climatic Change

Action should be context-specific and grounded in the best available science

- Prioritize sites - focus on those sites that have high carbon (for protection) or have lost a lot of carbon (for rebuilding)
- Determine appropriate action - management actions are not a one-size-fits-all. They will differ in their potential, appropriateness, and in possible trade-offs or co-benefits.
- Continue data collection - Continued data collection and science will help to refine estimates and action over time



Realized potential of soil carbon stewardship for promoting food security and environmental sustainability while also contributing to climate change mitigation

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Bradford et al. 2019 Nature Sustainability; Bradford et al. 2021 AGCI Quarterly Report; Amelung et al. 2020 Nature Communications

Thank you! Questions?

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