

Natural Climate Solutions and the Voluntary Carbon Market



Abby Fennelly

SEPTEMBER 2024

KEY POINTS

- Natural climate solutions, land management practices that increase carbon storage and/or avoid greenhouse gas emissions in forests, wetlands, and soils, among other ecosystems, have the potential to deliver up to one-third of net emissions reductions needed to remain within a 1.5 or 2°C warming pathway by 2030.
- The voluntary carbon market is a possible source of financing for natural climate solutions at scale; however, markets have faced criticism for their lack of transparency and regulation.
- Woodwell has begun developing a novel tool to address the lack of confidence and participation in these markets, the *Landscape Capital Index*. The Index is an independent, data-driven tool for assessing the potential of any tract of land to deliver climate mitigation, co-benefit, and conservation outcomes.
- For natural climate solutions and the voluntary carbon market to succeed, federal regulations that increase standardization and integrity across the market will be essential.

FOUNDATIONAL RESEARCH

Nearly all emissions reduction pathways rely on carbon removal through natural climate solutions (NCS)—land management practices that increase carbon storage and/or avoid greenhouse gas emissions in forests, wetlands, and soils, among other ecosystems. Such ecosystems currently remove about 30% of global annual carbon dioxide emissions and have the potential to increase this critical carbon sequestration function.¹ NCS could potentially deliver up to one-third of net emission reductions needed to remain within a 1.5 or 2°C warming pathway by 2030.² Using NCS to abate emissions is the most deployable and cost-effective solution available.³ NCS, when designed correctly, can also provide valuable ecosystem co-benefits including biodiversity conservation and water supply protection.

Regulatory and voluntary carbon markets (VCMs) are possible sources of financing for NCS at scale. VCMs, however, have faced criticism for their lack of transparency and integrity.⁴ To be effective, VCMs need science-based standards that ensure that credits represent a true emissions reduction. The Woodwell Climate Research Center’s (Woodwell) Carbon Program develops strategies to promote NCS, including a set of [Guiding Principles for Just, Effective Natural Climate Solutions](#).⁵ Woodwell also engages in advocating for federal support of NCS, such as developing key text in the 2024 Farm Bill to include NCS research as a high-priority research and extension initiative for the United States Department of Agriculture (USDA). Woodwell also advocates for science-based standards and integrity in VCMs, urging the Commodity Futures Trading Commission (CFTC) and USDA to expand and strengthen their regulation of the market through science-based standard setting.

NEW TOOL: LANDSCAPE CAPITAL INDEX

To address the lack of confidence and participation in carbon markets, Woodwell is developing the *Landscape Capital Index* (LCI). The LCI is a data-driven tool for assessing the potential of any tract of land to deliver climate mitigation and conservation outcomes, along with other co-benefits.

The LCI quantifies landscape quality, potential, and risk by using more than 40 geospatial datasets, some created and maintained by Woodwell and some publicly available. Approximately half the data layers involved were developed in-house by Woodwell researchers and all data sets have origins in the peer-reviewed literature. These datasets are standardized and transformed to a percentile rank, and then ranks for various indicators are aggregated to create the final index score. There are 26 distinct indicators falling under eight sub-components and four main components (see Figure 1).

¹ Adams, J., T. Hartmann, R. King, D.K.N. Waughray, D. Aminetzah, E. Birch, J. Claes, J. Katz, P. Minion, D. Pinner, McKinsey Nature Analytics & C. Neill. (2021). *Nature and Net Zero*. World Economic Forum. https://www3.weforum.org/docs/WEF_Consultation_Nature_and_Net_Zero_2021.pdf

² Adams et al. 2021 (ibid).

³ Griscom, B.W., J. Busch, S.C. Cook-Patton, P.W. Ellis, J. Funk, S.M. Leavitt, G. Lomax, W.R. Turner, M. Chapman, J. Engelmann, N.P. Gurwick, E. Landis, D. Lawrence, Y. Malhi, L. Schindler Murray, D. Navarrete, S. Roe, S. Scull, P. Smith, C. Streck, W.S. Walker & T. Worthington. (2020). National mitigation potential from natural climate solutions in the tropics. *Philosophical Transactions of the Royal Society B*, 375(1794). <https://doi.org/10.1098/rstb.2019.0126>

⁴ Birdsey, Richard, Zach Zobel, David McGlinchey, Wayne Walker, Natalie Baillargeon, Susan Natali, Glenn Bush, Richard Houghton & Jonathan Sanderman. (2023). *Principles and Safeguards for Natural Climate Solutions*. Woodwell Climate Research Center. <https://www.woodwellclimate.org/our-impact/ncs-principles>

⁵ Birdsey et al. 2023 (ibid).

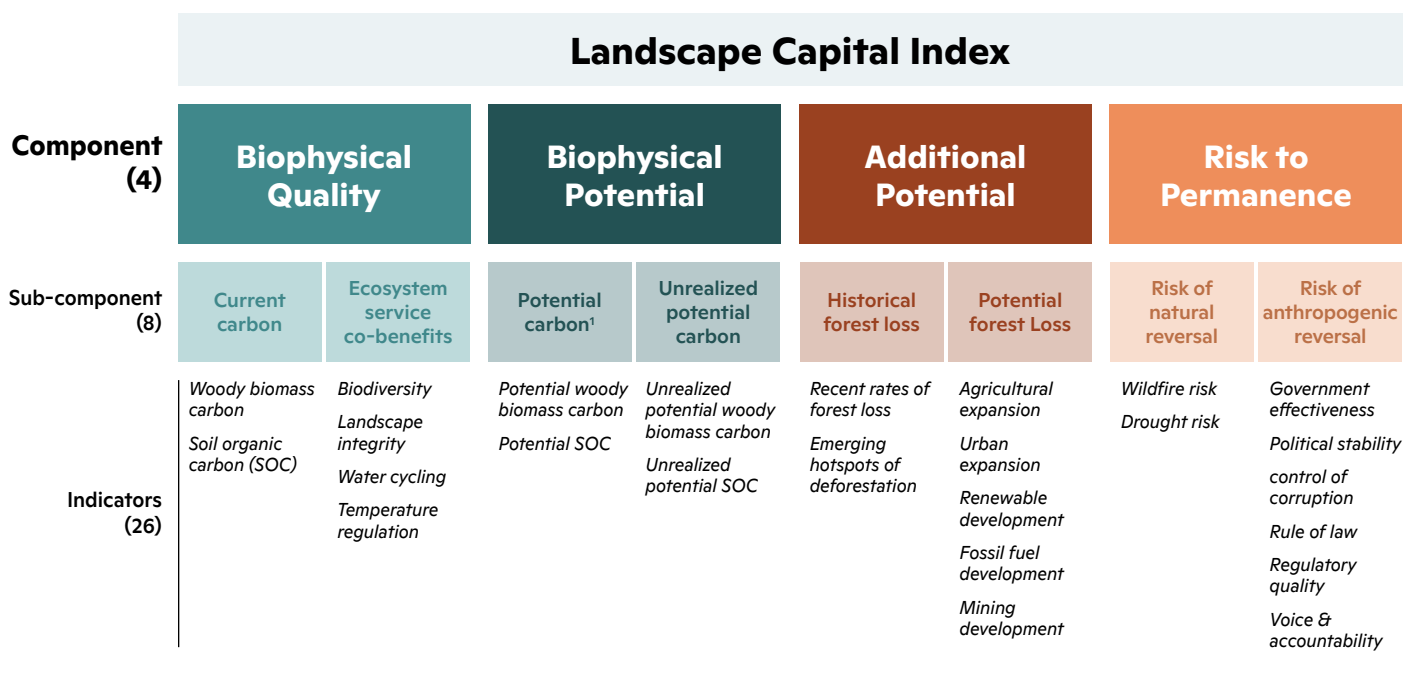


Figure 1. Components, sub-components, and indicators of the LCI.

WHERE IS CARBON MARKET REGULATION TODAY?

Federal agencies are beginning to take action to strengthen voluntary carbon markets. In 2022, following the first meeting of the CFTC's Voluntary Carbon Markets Convening, the Commission issued a [Request for Information](#) on Climate-Related Financial Risk.⁶ Woodwell submitted a comment in response, advocating for registry centralization, increased market data access and transparency, and an emphasis on demand-side solutions.⁷ Following a second Convening in June 2023, the CFTC established the [Environmental Fraud Task Force](#) to combat fraud and misconduct in regulated derivatives markets and relevant spot markets, including the VCM.⁸ In December 2023, the CFTC issued a [Proposed Guidance](#) Regarding the Listing of Voluntary Carbon Credit Derivative Contracts, along with a request for public comment on the listing.⁹

In May 2024, the Biden Administration released a set of [Principles for Responsible Participation](#) in Voluntary Carbon Markets, a set of nonbinding guidelines that encourage market participants to produce and use credits with the highest integrity to ensure true emissions reduction.¹⁰ Currently, the USDA is working to increase the integrity of the VCM and eliminate barriers to entry for farmers, ranchers, and private forest landowners through the Growing Climate Solutions Act (GCSA) and associated Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Program, soliciting public comment on definitions, standards, and criteria for the Program. Woodwell has [submitted a response](#) to the USDA's RFI urging the Department to set clear and rigorous criteria for carbon protocols to qualify for listing under the Program.¹¹

OPPORTUNITIES FOR FEDERAL INVESTMENT AND ENGAGEMENT

While these actions all trend in the direction of much-needed regulation, there remain problems with VCMs that the federal government can address.

- It is not straightforward for buyers to **access pricing or rating information** on carbon credits. Carbon credits themselves are uncertain investments due to multiple accounting and verification methods (standards often vary in criteria) and because project co-benefits (such as community economic development and biodiversity protection) are seldom well defined. This makes it challenging for buyers to ensure the value of each credit, including whether it represents true removal or avoidance carbon.
- This also leads to a lack of **confidence** in the market, especially with recent [high-profile cases](#) of carbon credit sales that provided little to no true emissions reduction.¹² Standardization and regulation of the market will increase both buyer confidence and ensure that the VCM delivers true emissions reductions and climate benefits.

⁶ Commodity Futures Trading Commission. (2022, June 02). *CFTC Releases Request for Information on Climate-Related Financial Risk* [Press Release]. <https://www.cftc.gov/PressRoom/PressReleases/8541-22>

⁷ Woodwell Climate Research Center. (2022, October). Comment Letter on Climate-Related Financial Risk, 87 FR 34856, Commodity Futures Trading Commission. <https://comments.cftc.gov/PublicComments/ViewComment.aspx?id=70828&SearchText=woodwell>

⁸ Commodity Futures Trading Commission. (2023, June 29). *CFTC Division of Enforcement Creates Two New Task Forces* [Press Release]. <https://www.cftc.gov/PressRoom/PressReleases/8736-23>

⁹ Commodity Futures Trading Commission. (2023, December 04). *CFTC Issues Proposed Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts* [Press Release]. <https://www.cftc.gov/PressRoom/PressReleases/8829-23>

¹⁰ Biden-Harris Administration. (2024). *Voluntary Carbon Markets Joint Policy Statement and Principles*. <https://www.whitehouse.gov/wp-content/uploads/2024/05/VCM-Joint-Policy-Statement-and-Principles.pdf>

¹¹ Woodwell Climate Research Center, Comment Letter on Greenhouse Gas Technical Assistance Provider and Third Party Verifier Program, 89 FR 46335, United States Department of Agriculture. (2024, June). <https://www.regulations.gov/comment/AMS-LP-24-0012-0074>

¹² Greenfield, Patrick. (2023, January 18). Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows. *The Guardian*. <https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe>



WOODWELL CLIMATE RESEARCH CENTER conducts science for solutions at the nexus of climate, people and nature. We partner with leaders and communities for just, meaningful impact to address the climate crisis. We bring together hands-on experience and over 35 years of policy impact to find societal-scale solutions that can be put into immediate action.