

DR. FLORIAN KRAXNER

Research Group Leader | Principal Research Scholar | Forest, Land-System & Sustainability Scientist

IIASA, Laxenburg, Austria | Visiting Professor, Korea University | President, IBFRA | Austrian National Team Leader, IEA Bioenergy Task 45 | Scientific Lead, SITCA

SCIENTIFIC PROFILE

International forest, land-system and environmental scientist with 20+ years of experience at the interface of forestry, climate change, ecosystem services, biomass, bioenergy, CDR and the circular bioeconomy. Research combines integrated modelling, scenario analysis and sustainability assessment to understand how forests can contribute to climate mitigation, adaptation, biodiversity and human well-being.

Current work increasingly connects sustainable forest management with long-lived wood products and timber construction. As Scientific Lead of SITCA, he develops the science base linking timber availability, forest carbon, harvested wood products, long-term storage, material substitution and sustainability. This includes the Forestry–Construction–CO₂ Pump as a systems perspective connecting forest CO₂ uptake, sustainable biomass use, durable timber products/buildings and avoided emissions from more carbon-intensive construction materials.

CURRENT POSITIONS & LEADERSHIP

- Research Group Leader & Principal Research Scholar, Agriculture, Forestry and Ecosystem Services (AFE), IIASA.
- President, International Boreal Forest Research Association (IBFRA), 2018-2026
- Visiting Professor, Korea University, Seoul, 2022-.
- Austrian National Team Leader, IEA Bioenergy Task 45 – Climate and Sustainability Effects of Bioenergy within the Circular Bioeconomy, 2025–2027.
- Scientific Lead, Science and Timber Construction Alliance (SITCA), 2026–.

CORE EXPERTISE

- Sustainable and climate-resilient forest management; forest carbon dynamics
- Forest and land-system modelling; integrated assessment; scenario analysis
- Sustainable biomass, bioenergy, BECCS and circular bioeconomy
- Carbon dioxide removal, land-based negative emissions and nature-based solutions
- Biodiversity, ecosystem services, restoration and wildfire/climate risks
- Harvested wood products, long-term carbon storage and timber construction
- Carbon accounting, sustainability assessment and science–policy–industry interfaces

CAREER & ACADEMIC BACKGROUND

- IIASA – Research Group Leader / Principal Research Scholar; former Deputy Program Director, Forestry and Ecosystems Services & Management Programs; former Head, Center for Landscape Resilience & Management.
- Korea University – Visiting Professor.

- Hokkaido University, Japan – PhD, Environmental Sciences.
- BOKU University, Vienna – MSc/BSc; forestry, mountain risk engineering and watershed management.

SELECTED SCIENTIFIC CONTRIBUTIONS

- Global Forest Model (G4M) and integrated forest-sector modelling.
- Forest/wildfire modelling and climate-risk/adaptation assessment, including FLAM-related work.
- Land-based CDR and negative-emission assessment, including afforestation/reforestation, forest management and BECCS.
- Sustainable supply chain assessment.
- IEA Bioenergy Task 45: Austrian scientific leadership on climate and sustainability effects of bioenergy.
- SITCA: scientific leadership on sustainable timber availability, carbon storage and timber construction.

SELECTED FLAGSHIP PUBLICATIONS

- Prütz et al., incl. Kraxner (2026). Biodiversity implications of land-intensive carbon dioxide removal. *Nature Climate Change*, 16, 155–163.
- Mo et al., incl. Kraxner (2023). Integrated global assessment of the natural forest carbon potential. *Nature*, 624, 92–101.
- Mo et al., incl. Kraxner (2024). The global distribution and drivers of wood density and their impact on forest carbon stocks. *Nature Ecology & Evolution*.
- Steidinger et al., incl. Kraxner (2019). Climatic controls of decomposition drive the global biogeography of forest-tree symbioses. *Nature*, 569, 404–408.
- Jiang et al., incl. Kraxner (2025). Mycorrhizal symbioses and tree diversity in global forest communities. *Science Advances*, 11(24).
- Hordijk et al., incl. Kraxner (2024). Dominance and rarity in tree communities across the globe: Patterns, predictors and threats. *Global Ecology and Biogeography*.
- Lück et al., incl. Kraxner (2025). Scientific literature on carbon dioxide removal revealed as much larger through AI-enhanced systematic mapping. *Nature Communications*, 16, e6632.
- Smith et al., incl. Kraxner (2019). Land-Management Options for Greenhouse Gas Removal and Their Impacts on Ecosystem Services and the Sustainable Development Goals. *Annual Review of Environment and Resources*, 44, 255–286.
- Soterroni et al., incl. Kraxner (2019). Expanding the Soy Moratorium to Brazil's Cerrado. *Science Advances*, 5, eaav7336.
- Havlik et al., incl. Kraxner (2014). Climate change mitigation through livestock system transitions. *Proceedings of the National Academy of Sciences*, 111, 3709–3714.
- Smith et al., incl. Kraxner (2016). Biophysical and economic limits to negative CO₂ emissions. *Nature Climate Change*, 6, 42–50.

- Fuss et al., incl. Kraxner (2014). Betting on negative emissions. *Nature Climate Change*, 4, 850–853.

SELECTED ADDITIONAL RELEVANT PUBLICATIONS

- Yuwono et al., incl. Kraxner (2026). BECCS potential and impacts in Indonesia's electricity-sector decarbonization. *Energy Strategy Reviews*.
- Bilous et al., incl. Kraxner (2026). Multiple-use forests and ecosystem services in Ukrainian Polissya. *European Journal of Forest Research*.
- Hong et al., Kraxner et al. (2025). Climate-resilient development pathways in forestry: carbon management in Korea. *Environmental Impact Assessment Review*.
- Jandl et al., incl. Kraxner (2024). Carbon dioxide neutrality of sustainably managed forests of Austria. *Ecological Engineering*.

SCIENTIFIC OUTPUT & SERVICE

300+ scientific and research outputs (IIASA repository), including peer-reviewed articles, books/chapters, reports and research contributions. Publications include *Nature*, *Nature Climate Change*, *Nature Communications*, *Nature Ecology & Evolution*, *Science Advances*, *PNAS* and other leading journals.

- International scientific leadership, review and advisory activities; IUFRO and IEA Bioenergy engagement; conference organisation, keynote/invited speaking, teaching and supervision.

LANGUAGES & METHODS

German (native) | English (fluent/professional scientific) | Spanish (fluent) |

Methods: integrated assessment, forest/land-use modelling, forest ecosystems assessment, scenario assessment, carbon accounting and sustainability assessment.

IDENTIFIERS

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IIASA Institutional website | Publication Repository: <https://iiasa.ac.at/staff/florian-kraxner>

Google Scholar: h-index 67 | <https://scholar.google.com/citations?user=2EWF0V0AAAAJ&hl=en>