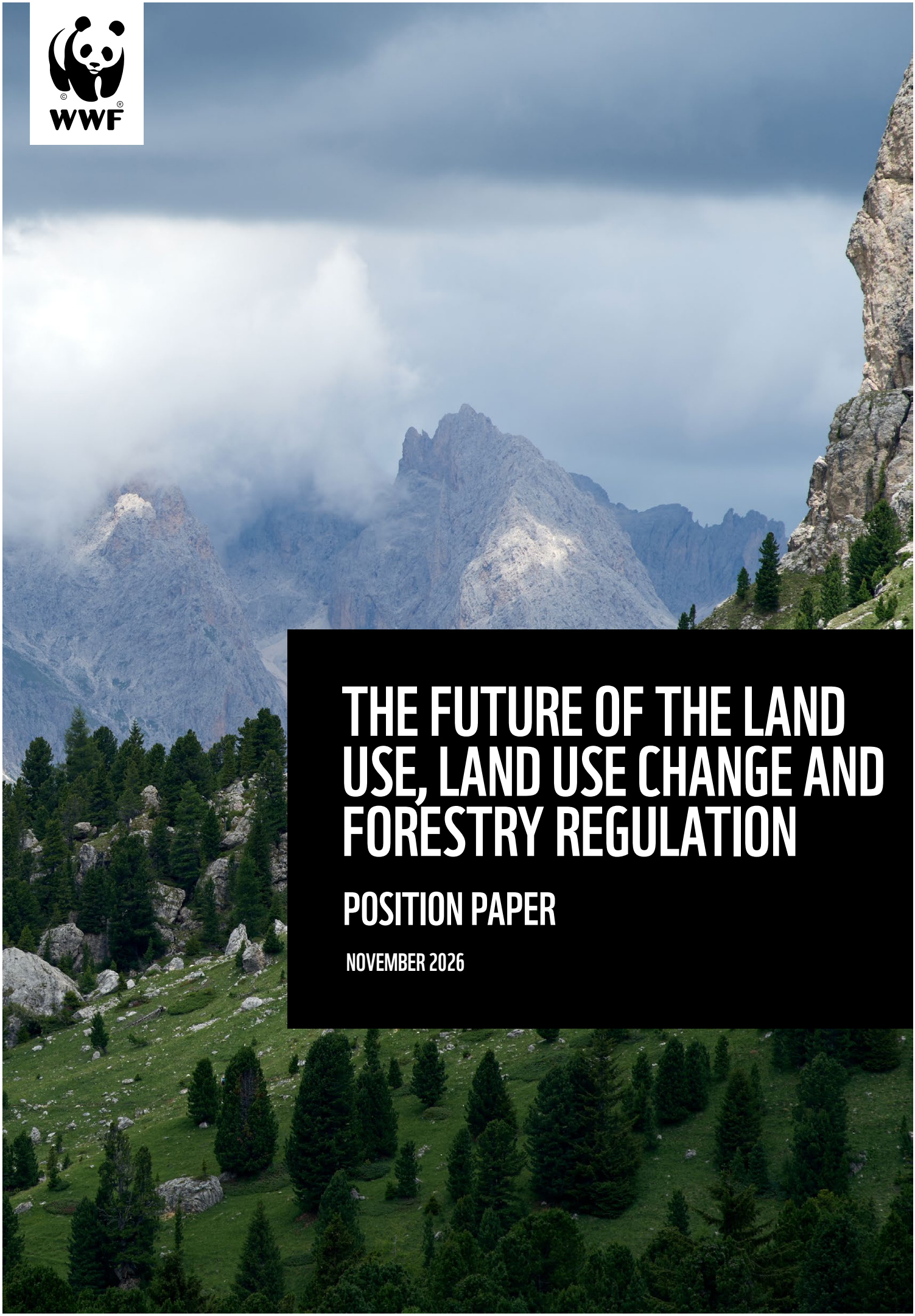

THE FUTURE OF THE LAND USE, LAND USE CHANGE AND FORESTRY REGULATION

POSITION PAPER

NOVEMBER 2026

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We'd like to thank all colleagues across the WWF EU network for their support and guidance in producing this report.

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Design: Imre Sebestyén - Unit Graphics

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EXECUTIVE SUMMARY

Achieving climate neutrality requires rapid emissions reductions across all sectors, complemented by carbon removals to address unavoidable residual emissions. Healthy forests, wetlands, grasslands and soils are central to this effort, removing carbon from the atmosphere while delivering benefits for nature, climate adaptation, and people. The Land Use, Land Use Change and Forestry (LULUCF) Regulation provides the EU's only legally binding framework for managing emissions and removals from land ecosystems and is therefore a cornerstone of the EU climate architecture.

The LULUCF Regulation lapses in 2030, hence the European Commission is currently preparing its revision to comply with the 2040 climate target. This review comes at a critical time, as recent trends show that the EU land sink is declining and is not on track to achieve its target of 310 $MtCO_2$-eq net removals per year by 2030. The deterioration of the land sink is driven by multiple factors, including increased harvesting and the growing impacts of climate change. While natural disturbances such as wildfires, droughts and pest outbreaks are becoming more severe every year, land management choices remain the dominant driver of the decline in Europe's forest carbon sink, with logging causing around 90% of tree cover loss in Europe between 2001 and 2025. WWF therefore calls for a strengthened LULUCF that supports climate mitigation, adaptation and nature restoration.

This paper sets out WWF's vision for a strengthened post-2030 LULUCF framework that can support the delivery of the EU's 2040 climate target while reinforcing ecosystem resilience, biodiversity protection and climate adaptation. At a time when Europe's land sink is under increasing pressure, the revision of the LULUCF Regulation is also an opportunity to strengthen accountability and improve implementation. As the EU prepares the next phase of its climate architecture, the following recommendations outline WWF's key principles needed to ensure the land sector contributes effectively to climate neutrality and nature restoration.



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KEY RECOMMENDATIONS

1. **Maintain LULUCF as a separate pillar of EU climate policy**
   The LULUCF Regulation should continue in its current form or remain a distinct pillar within an economy-wide framework for delivering the EU's 2040 climate target and climate neutrality by 2050. Agricultural non-CO_2 emissions and permanent removals should not be included in the Regulation, and land-based removals should not be used to offset emission reductions in other sectors.

2. **Set a higher, binding and science-based 2040 target for the land sector**
   The EU should adopt a binding LULUCF target of at least 400 $MtCO_2$-eq net removals per year by 2040, exceeding the current 2030 target. The target should follow a linear trajectory, account for the projected 2030 deficit. It should be implemented through the sum of binding national targets. National LULUCF targets should be distributed to reflect mitigation potential/hectare on managed land, biophysical conditions and ecological constraints while embedding principles of equity, solidarity, and differentiated responsibilities.

3. **Exclude international credits**
   Member States should not be allowed to use international credits to meet national targets established under EU climate legislation.

4. **Strengthen safeguards for natural disturbance flexibilities**
   Existing flexibilities for natural disturbances should be maintained, but strengthened through mandatory monitoring and planning, key safeguards, and accountability mechanisms. These measures should help Member States better prepare for future disturbances and improve the long-term resilience of land ecosystems.

5. **Ensure CRCF complements, not replaces, LULUCF ambition**
   Carbon farming credits under the Carbon Removal and Carbon Farming Certification Framework (CRCF) can help support action in the land sector, but they cannot replace ambitious targets or accountability under the LULUCF Regulation. Investments in these credits should not be used as a flexibility mechanism or as a substitute for an ambitious 2040 target. CRCF methodologies should also be strengthened, particularly regarding biodiversity co-benefits, additionality and permanence.

6. **Improve monitoring, reporting and verification of the GHG inventories**
   Monitoring Reporting and Verification of the LULUCF greenhouse gas inventories must move to advanced methods based on data from field measurements and modelling (Tier 3). Transparency, standardised monitoring systems in the Member States, and increased capacity and collaboration are essential for credible and effective climate accounting in the land sector. Any update of the methodologies must be in line with the best available science and the Intergovernmental Panel on Climate Change.

7. **Strengthen enforcement and compliance**
   The Commission should ensure effective enforcement of the Regulation. Failure to comply with legal obligations should be subject to financial penalties.

8. **Address policies that undermine the land sink**
   The EU Commission and Member States must address policy inconsistencies that harm the land sink, including bioenergy policies, agriculture policies, and CRCF methodologies for permanent removals. Member States should assess the impact of harvesting levels on the land sink and, where necessary, introduce measures to reduce harvesting pressure.

9. **Redirect financial support towards climate and nature goals**
   Harmful subsidies identified through the policy consistency assessment should be redirected towards activities that strengthen the land sink, improve ecosystem resilience and support biodiversity. Member States should provide targeted support for forest owners, contractors, and local communities, while improving investment clarity under the Governance Regulation.

10. **Link LULUCF with the EU resilience agenda**
    The upcoming European Climate Resilience and Risk Management Integrated Framework should introduce synergies with the LULUCF Regulation. An ambitious target for nature-based carbon removals can contribute to climate resilience, and synergies, such as incentives for nature-based solutions, should be actively pursued.

A complete set of recommendations can be found below at the end of the briefing.

THE LULUCF REGULATION UNDER THE CURRENT ARCHITECTURE

The current Land Use, Land Use Change and Forestry (LULUCF) Regulation was introduced in 2018 by the European Commission with the aim to govern the land sector in the context of climate action. The Regulation tracks how much CO_2 is removed from the atmosphere by land, forests and other ecosystems and how much is emitted. The Regulation sets two targets for the EU. The first target requires the EU to balance its emissions and removals in the land sector to reach 0 (zero debit rule) by 2025; the second target requires the EU to achieve 310MtCO_2-eq removals per year by 2030. In addition to these EU-level targets; the Regulation includes specific national targets per country. The national targets are accompanied by annual limit values or 'budgets' for net greenhouse gases (GHGs) removals for 2026-2029. This recently entered into force via an Implementing Regulation.

Member States must integrate their land use considerations in several strategic plans, including in their National Energy and Climate Plans (NECPs) and their Common Agricultural Policy (CAP) strategic plans.

THE REVISION

On 9 February 2026, the European Commission opened a call for evidence concerning the revision of national targets and flexibilities in the EU climate policy framework after 2030; specifically seeking to consult on how national targets and efforts, including LULUCF sector targets beyond 2030, can promote the required GHG emission reductions and removals to support achieving the EU's 2040 climate target. The Commission proposal for the 'national targets and flexibilities' package is expected in Q1 2027.



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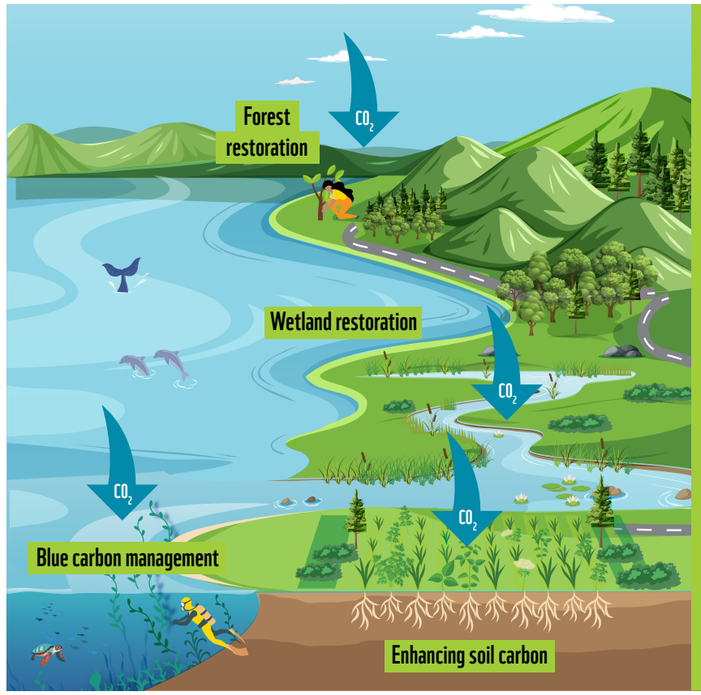
THE ROLE OF THE LULUCF SECTOR IN THE CLIMATE AND BIODIVERSITY CRISIS

Limiting human-caused global warming requires net zero CO_2 emissions and after that, net negative emissions. All global modelled pathways that limit warming to 1.5°C with no or limited overshoot involve rapid and, in most cases, immediate GHG reductions in all sectors. However, some residual GHG emissions[1] (e.g., some emissions from agriculture, aviation, shipping, and industrial processes) remain and would need to be counterbalanced by deployment of carbon dioxide removal (CDR) methods to achieve net zero.[2] CDR deployment is to be treated completely separately from emissions reductions to avoid mitigation deterrence, however without it, climate goals are unlikely to be reached.

Land ecosystems play an important role in the climate system as they primarily function as a carbon sink, removing CO_2 out of the atmosphere, but they can also act as a source of GHG emissions depending on how they are managed. The LULUCF Regulation is essential to secure that the EU achieves its climate targets and does its fair share of the global efforts to reach the 1.5°C Paris Agreement temperature limit.

In addition, land provides the principal basis for human livelihoods and well-being including the supply of food, freshwater and multiple other ecosystem services, while protecting biodiversity. Human use directly affects more than 70% of the global, ice-free land surface.[3] Land ecosystems and biodiversity are vulnerable to ongoing climate and weather change, and climate extremes. Sustainable land management can contribute to reducing the negative impacts of multiple stressors on ecosystems and societies. Healthy and well-managed ecosystems are generally more resilient to climate stressors; therefore, the LULUCF sector can also play an important role in climate adaptation.



Forest restoration
Restoration of forest ecosystems to remove and store carbon from the atmosphere.*

Wetland restoration
Restoration of wetland ecosystems to cut emissions and remove and store carbon from the atmosphere.

Blue carbon management
Restoration of marine and coastal ecosystems (e.g. seagrass meadows) that remove and store carbon from the atmosphere.

Enhancing soil carbon
Nature-friendly farming practices that enhance soil carbon, health, fertility and productivity. These practices remove and store carbon from the atmosphere.

* Carbon can also be stored in products, but cutting down trees for timber is not a climate solution. As the European Commission says, "…until 2050, the potential additional benefits from harvested wood products and material substitution are unlikely to compensate for the reduction of the net forest sink associated with the increased harvesting."

1 For WWF, what is understood and calculated as residual emissions should be regularly reviewed, at intervals of no greater than 5 years, in consultation with the European Scientific Advisory Board on Climate Change, considering criteria of technological availability and social necessity.

2 International Panel on Climate Change, AR5 2023, B.6.2.

3 IPCC, 2019: Summary for Policymakers. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, p.5.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For these reasons, the LULUCF Regulation should deliver the following outcomes:

1. Cut emissions from the land sector.

Land ecosystems, such as forests, wetlands, grasslands and soils, have the potential to absorb and store large amounts of carbon. When well protected and restored, they act as carbon sinks. On the other hand, when degraded or converted, they become significant sources of emissions. The LULUCF Regulation should be used to reduce emissions from land use as it provides a benchmark against which progress can be measured, and the existence of its target creates legal certainty for all stakeholders and drives policy frameworks meant to support and implement such a target (e.g., the Nature Restoration Regulation). The removals targets for Member States in the LULUCF Regulation create an obligation on Member States to plan, regulate and manage land in ways that achieve compliance with the LULUCF Regulation.

2. Incentivise nature-based removals.

Nature-based removals are essential for climate stability under 1.5°C. The land sector is the only sector that (for the moment) can remove carbon dioxide from the atmosphere at scale, at a low cost, fast, and while producing several co-benefits such as air and water quality, soil health, biodiversity, etc. Globally, the vast majority of CDR comes from afforestation and reforestation.[4] Other types of nature-based removals include soil carbon management and management of wetlands, such as the restoration of inland peatlands and so-called 'blue carbon' sinks like coastal mangrove forests, salt marshes and seagrass meadows.[5] Nature-based removals store carbon in ecosystems and are therefore more susceptible to reversals than technological CO_2 storage, due to natural disturbances or human interventions (e.g., land-use change) which can disturb the carbon stored and release it back into the atmosphere. For this reason, they are deemed to be 'temporary'. Nature-based removals should not be evaluated on their removal potential only. They should be evaluated for their simultaneous benefit to nature, people and the climate over the longer term; and remain a crucial consideration and a priority for reaching the EU climate and biodiversity objectives.

3. Strengthen the resilience of ecosystems and protect nature.

Nature is a critical ally in the fight against climate change, and for more biodiverse landscapes and ecosystems.[6] The way land is used determines outcomes for nature, food security and rural livelihoods. To achieve a healthy land sink, we need to prioritise ecosystem integrity, biodiversity, sustainable food production and secure land rights. A healthy land base protects farmers' and foresters' profitability. The sector also acts as a climate risk buffer. Healthy ecosystems increase resilience to climate impacts by reducing flood risk, stabilising soils, regulating water cycles and cooling local climates. Strengthening the land sink therefore reduces adaptation costs and limits future climate damage. Weak land governance on the other hand, amplifies climate risks. The LULUCF Regulation is not critical to climate only, but also part of the legal framework that underpins nature and biodiversity objectives.

By contrast, the carbon sinks of the LULUCF sector must not serve as a licence to delay or dilute emissions reductions or broader climate ambition. Removals from LULUCF should never be used to offset emissions. Carbon persists in the atmosphere for centuries to millennia and cannot be treated as equivalent to nature-based removals, which are reversible by human intervention and increasingly vulnerable to natural disturbances.

4 State of CDR Report, 3rd Edition, Chapter 7: https://www.stateofcdr.org/report/3rd-edition p. 164.

5 ibid p. 165.

6 European Environmental Agency, Carbon stocks and sequestration in terrestrial and marine ecosystems: a level for nature restoration (2022).

NOT ON TRACK FOR 2030

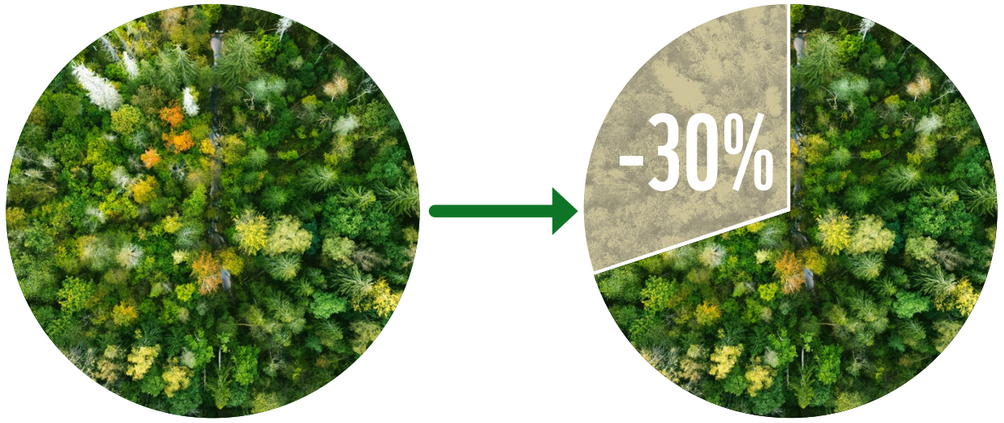
Recent trends have shown the EU is not on track to reach its 2030 target for the LULUCF. Between 2014 and 2023, the EU's average net annual carbon sink was 30% smaller than the decade before. Forest land, which is the largest contributor to removals with a CO_2 capture of -288Mt in 2021 (equivalent to about 8% of the total GHG emissions emitted in the EU), has been drastically declining in the past decade, with countries such as Finland going from removing to emitting CO_2.[7] With existing measures, the total net removals are projected to reach -239 Mt CO_2-eq in 2030, and -260 Mt CO_2-eq with additional measures, which would still be insufficient. In addition to the negative forest land trends, it is worth noting that we have witnessed almost no positive change in the land categories of grasslands and croplands, both remain a source of emissions.[8]

In January 2024, the European Scientific Advisory Board on Climate Change (ESABCC) published a report that found that the EU's LULUCF net carbon sink has declined significantly in recent years, and to meet the legally binding target by 2030, the EU's carbon sink will need to remove an additional eight million tonnes of CO_2 each year in the 2023–2030 period (in total at least 56 MtCO_2-eq more).[9] Later, the EU published a report on the operation of the LULUCF Regulation, and an EU-wide assessment of Member States' NECPs confirming the findings of the ESABCC.

EU LAND SINK

A DECADE AGO

TODAY



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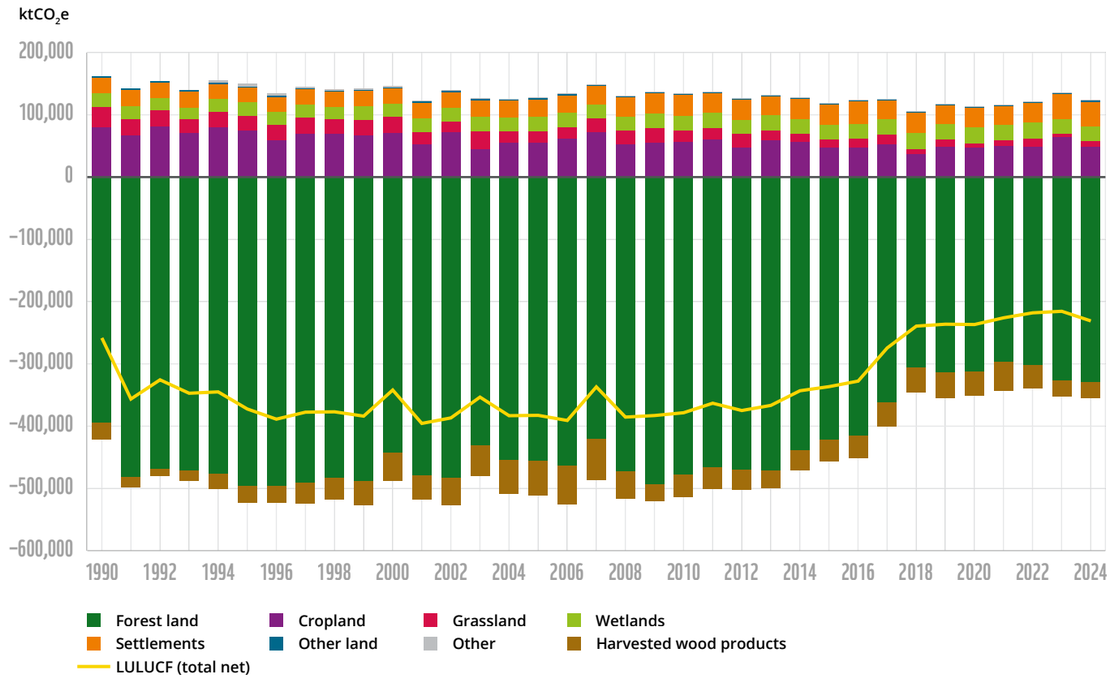
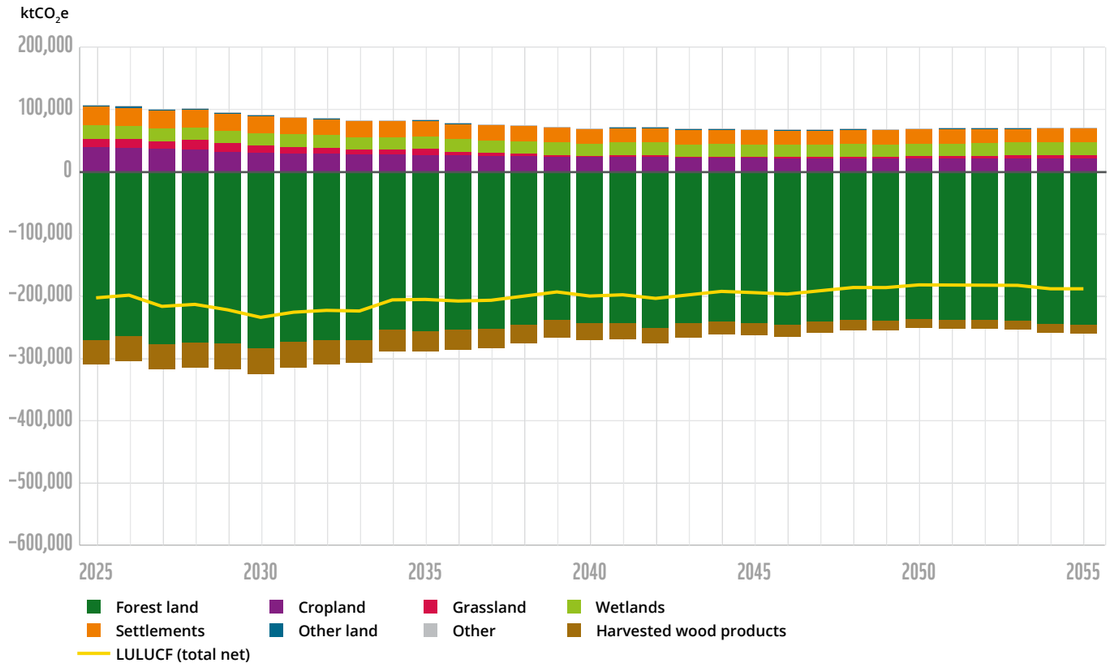
Historic trend of emissions and removals of the LULUCF sector.



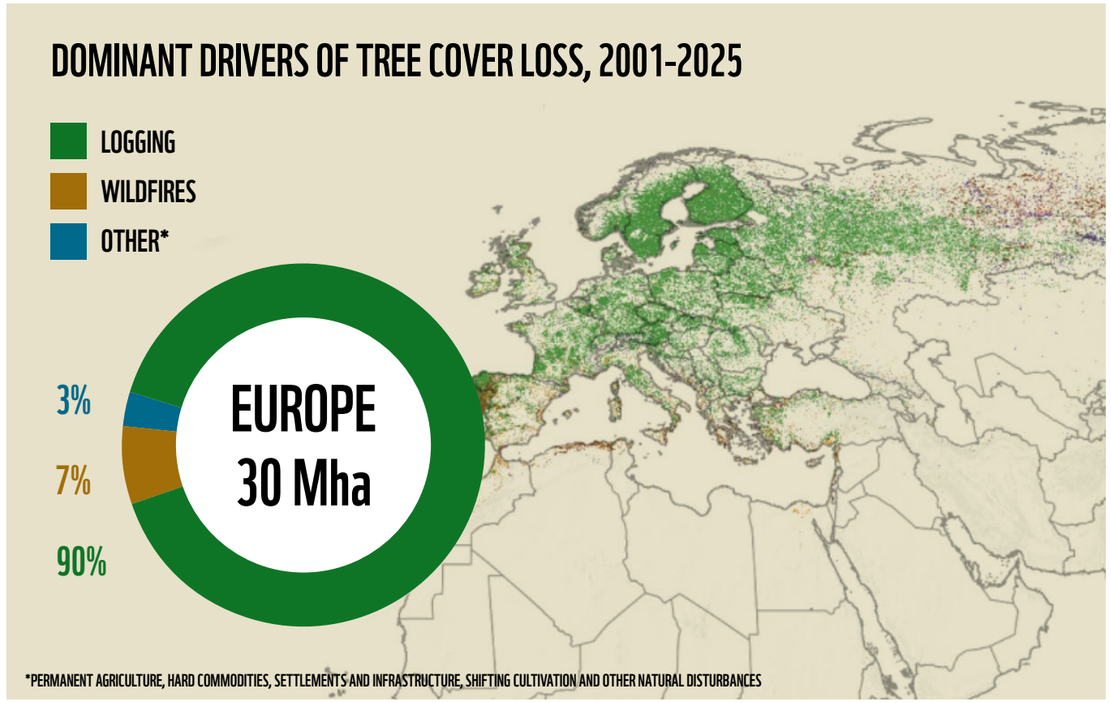
Source: EEA, June 2026.

Projections of emissions and removals of the LULUCF sector, WAM scenario.



Source: EEA, September 2026.

7 European Environmental Agency, Trends and projections in Europe 2023, Report 7/2023.
8 ibid.
9 European Scientific Advisory Board on Climate Change, Towards EU Climate Neutrality (2024) p. 181.



Source: WRI/Google DeepMind, Sims et al. 2025. Note: this data classifies the dominant driver of loss at 1-km resolution over the full 2001-2025 time period.

AROUND 90% OF TREE COVER LOSS IN EUROPE BETWEEN 2001-2025 WAS CAUSED BY LOGGING.

According to the European Environmental Agency (EEA), the decline of the LULUCF sink can be attributed to several drivers largely found in the dynamics of the category forest land. The EEA identifies the four following drivers: (1) forests have matured and so they sequester at a lower rate, (2) there has been an increase in harvesting levels, (3) climate change is exacerbating natural disturbances and accelerating the decay process of carbon stored in soils and dead organic matter, and (4) the annual rate of afforestation decreased compared to 50–70 years ago.

Other studies at the EU-level point towards harvesting being the main culprit of the decline of the sink on average in Europe. WWF is actively debunking the Member States' and forest industries' narrative that the decline of the sink is outside their control. Even though it is true that with climate change natural disturbances are happening more often and can cause serious local damage, placing the blame mainly on these events is grossly misleading. The pressures facing Europe's forests run deeper, and an important driver lies within the control of Member States: harvesting levels. **Around 90% of tree cover loss in Europe between 2001–2025 was caused by logging**.[10] Human-induced disturbance rates (such as harvesting for timber)[11] remained high in recent years, with Finland and Sweden, Europe's most-forested countries, losing 1.1% of their tree cover in 2023 in comparison to the beginning of this millennium. This is higher than the EU average of 0.85%.[12] Increased logging is majorly impacting the carbon sink.[13] Demand for wood, especially for production of heat and power, has climbed steadily, partly because the bioenergy policies incentivise wood biomass burning. Many countries in recent years have been rapidly increasing their use of biomass for energy. As an example, in 2023 Hungary experienced the highest amount of annual tree cover loss, during which time its bioenergy production also increased accordingly.[14]

A database of over 170,000 records of ground-based natural disturbance observations in European forests shows that in the last 20 years, the average timber volume disturbed by natural disturbances accounted only for 16% of the mean annual harvest in Europe.[15] Reports also highlight the increase of above-ground biomass loss due to natural disturbances is climbing since 2018 putting at risk the forest carbon sink.[16]

Nonetheless, it is worth mentioning that the exact situation per country differs greatly from EU-averages. There is a need to better understand the impacts of natural disturbances and harvesting on the European forest sink, with considerations on the different ecoregions. This is an important knowledge gap that needs to be bridged.

NATURAL DISTURBANCES

Extreme events such as storms, insect outbreaks or fires in forests can significantly affect the GHG inventories of countries in a single year.

The most common examples include (1) drought events, that can negatively affect tree growth and increase tree mortality; (2) insect outbreaks, that can reduce forest growth, kill individual trees or even entire forest stands; (3) forest fires, that cause direct emissions but also reduce CO_2 removals for potentially decades; and (4) windfalls from storm events, that can damage trees by breaking their stem or uprooting. Windfalls are often followed by insect outbreaks as storm-damaged trees are less resilient. Dying and dead trees might be harvested through salvage logging. The damaged trees might still be used for products. However, often timber quality is reduced.

The LULUCF Regulation defines 'natural disturbances' as follows:

*'natural disturbances' means any **non-anthropogenic** events (emphasis added) or circumstances that cause significant emissions in the LULUCF sector, the occurrence of which is **beyond the control of the relevant Member State**, and the effects of which the Member State is **objectively unable to significantly limit**, even after their occurrence, on emissions.*



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10 World Resources Institute: Global Forest Review, Tropical rainforest loss slowed in 2025, but fire is a growing threat worldwide (2026). A Nature Communications article reports that "disturbances by human land use (e.g. harvesting) dominate the European forest disturbances accounting for 82% of the disturbed area", see R Seidl and C Senf, Changes in planned and unplanned canopy openings are linked in Europe's forests (2024).

11 World Resources Institute, 4 Growing threats to Europe's forests: logging, bioenergy, wildfires and pests (2024).

12 ibid.

13 M Migliavacca et al, Securing the forest carbon sink for the European Union's climate ambition (2025) Nature 643, pages 1203–1213.

14 World Resources Institute, 4 Growing threats to Europe's forests: logging, bioenergy, wildfires and pests (2024) (Supra 26).

15 Patacca, M., Lindner, M., Nabuurs, G.-J. and Schelhaas, M.-J. 2023. Significant increase in forest disturbances since 1950s. Policy Brief 4. European Forest Institute.

16 Kowalski, Viana-Soto et al., Accelerating biomass loss from forest disturbances across Europe (2026) Nature Geoscience, Volume 19 | September 2026 | 1132–1138.

NOT ALL WILDFIRE EMISSIONS COUNT TOWARDS THE LULUCF TARGET, BUT THEY STILL CONTRIBUTE TO CLIMATE CHANGE

Natural disturbances have an intrinsic value as a positive driver for biodiversity in different forest biomes. However, they can also be problematic when exacerbated by climate change. Climate change is threatening the economic value of forests and their capability as carbon sinks by increasing frequency and the extent of natural disturbances. In Europe, the biggest disturbance among the natural ones is wildfires (representing 7% of tree cover loss) in the past 25 years. Their frequency is quickly increasing. In France, tree cover loss due to fire in 2025 was the highest on record, 7 times higher than in 2024.[17] In Spain[18] and Portugal,[19] around 60% of all 2025 tree cover loss was caused by fire. 2023 was a record breaking year for wildfire in Greece, in fact, they accounted for 85% of the tree cover loss in 2023.[20] In addition to causing significant damage to forests and biodiversity, wildfires release a lot of carbon emissions: France's 2026 summer led to unprecedented carbon emissions, a figure not seen since measurements began by the EU Copernicus Earth observation service in 2003. Across Europe, from January to 20 September 2026, wildfire emissions reached around 26MtCO_2-eq.[21] While certain wildfire emissions may be excluded from LULUCF compliance accounting, the emissions themselves remain in the atmosphere and continue to contribute to climate change.

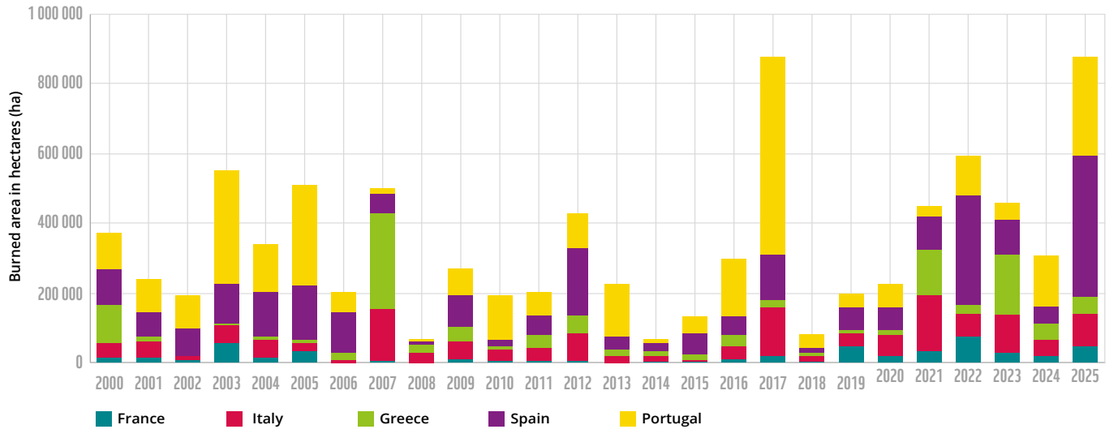
However, the trend and impacts of natural disturbances largely depend on the specific ecoregion. In fact, fires are less prevalent outside of Southern Europe.[22] In northern temperate and boreal forests, forest management has consistently prevented a lot of these natural dynamics and disturbances, especially fire, resulting in a great amount of habitat loss and subsequent declines of species populations due to a high degree of control, e.g., these species are dependent on burned wood and dead wood as a resource (many saproxylic fungi and beetles).[23]

THE RELATIONSHIP BETWEEN NATURAL DISTURBANCES AND LAND MANAGEMENT

Natural disturbances and land management, however, cannot be seen as two separate causes as very often there is a relationship between the effects of natural disturbances and land management choices.

For example, for forests, sustainable, close-to-nature, climate-smart management that mimics natural forests by maintaining vegetation structures and physiology help mitigate wildfire

TOTAL ANNUAL BURNED AREA IN THE MEDITERRANEAN REGION, 2000 - 2025



Source: EFFIS, data analyst: Helga Kuechly (WWF Germany).

17 World Resources Institute: Global Forest Review, Tropical rainforest loss slowed in 2025, but fire is a growing threat worldwide (2026).

18 BCC, Spain counts the cost of 'nightmare' wildfire summer (2025) see https://www.bbc.com/news/articles/cge211w5lr5o.

19 World Resources Institute: Global Forest Review, Tropical rainforest loss slowed in 2025, but fire is a growing threat worldwide (2026).

20 World Resources Institute, 4 Growing threats to Europe's forests: logging, bioenergy, wildfires and pests (2024).

21 CAMS GFAS v1.2 via Fire Emissions Watch. 26 MtCo2-eq is corresponding to around 7.22 Mt of carbon emissions. Data analyst: Helga Kuechly – WWF Germany.

22 World Resources Institute, 4 Growing threats to Europe's forests: logging, bioenergy, wildfires and pests (2024).

23 Fredriksson, E., Vahlström, I., Dahlberg, A., Magnusson, M. & Löfroth, T. 2025. Wildfires provide more diverse habitats than prescribed burns for saproxylic beetles and wood decay fungi in Swedish boreal landscapes. Journal of Environmental Management 395:127956. Milberg, P., Bergman, K.-O., Jansson, N., Norman, H., Sundin, F., Westerberg, L. & Johansson, V. 2024. Short Spatiotemporal Fire History Explains the Occurrence of Beetles Favoured by Fire. Insects 15.



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risks and make them more resilient, thus reducing the likelihood of high-intensity fire. Long-term evidence from Mediterranean oak woodlands shows that tailored natural grazing dynamics reduce the accumulation of highly flammable shrubs, decrease the amount of fine fuel, and, as a result, significantly lower the intensity and speed of fire spread.[24] Another study on the Spanish-Portuguese border demonstrated that combining the restoration of a mosaic landscape through 'high natural value' agriculture and fire-smart forest management could halve the area burned between 2030 and 2050, while benefiting biodiversity and increasing carbon sequestration.[25] WWF Spain and WWF Portugal have produced several reports advocating for well-managed landscapes.[26] A mosaic of native forests, agricultural land and pastures creates agro-silvopastoral landscapes that are less flammable and more resilient to wildfires, helping to prevent high-intensity fires and supporting ecosystem recovery.[27] WWF EU also published a paper on prevention and management of wildfires in Southern Europe through an integrated landscape planning approach.

Another example of land management relevant for the resilience of the sector to natural disturbances is related to the concept of 'sponge landscapes'.[28] Sponges include wetlands, peatlands, river systems including floodplains, healthy vegetated soils, and afforested headwater catchments. The concept of 'sponge landscapes' applies to a wide range of ecosystems, not only freshwater systems, but also forests, coastal zones, healthy soils and other landscape elements that contribute to a functioning water cycle and underpin climate resilience. Several studies show the potential of such sponge landscapes for storing carbon in addition to flood protection and resilience against droughts. A recent study shows that grazed floodplains remain stable CO_2 sinks despite once-in-a-century floods. Likewise, research conducted in the floodplain along the Tisza River in Hungary by WWF shows that periodical flooding enhances biomass production, increases carbon sequestration, and reduces overall greenhouse gas emissions.

By contrast, the transformation of natural ecosystems through practices such as land drainage, or intensive forestry is putting people and assets at risk. In Portugal, the high incidence of very dense monospecific forests (mostly eucalyptus), which, despite being planted, have not been managed and are therefore highly degraded, creates a high risk of fuelling future wildfires, putting ecosystems and human settlements at risk.

Germany on the other hand has been particularly impacted by bark beetle outbreaks due to global warming and forest management focusing on spruce monocultures, not fit for hot and dry periods. Currently, large areas of planted spruce trees growing in drier, warmer conditions, are increasingly vulnerable to bark beetle infestations.[29]

24 Lecomte et al, Ungulates mediate trade-offs between carbon storage and wildfire hazard in Mediterranean oak woodlands (2018).

25 S Pais et al, Mountain farmland protection and fire-smart management jointly reduce fire hazard and enhance biodiversity and carbon sequestration (2020).

26 WWF/ANP, Restaurar para prevenir proposta ibérica da WWF para promover paisagens resilientes aos incêndios (2024). WWF/ANP, Paisafens corta-fogos proposta da ANP/WW e WWF Espanha para um território ibérico adaptado aos incêndios (2021).

27 Lopes, L.F., Santos, E.S., Nunes, L. et al. Postfire oak afforestation in Portugal reveals trade-offs in the supply of ecosystem services. Eur J Forest Res 145, 13 (2026).

28 Sponge Landscapes are landscapes in which the natural ability to intercept rainfall, slow down runoff and temporarily store excess water (sponge function) has been restored or enhanced, with measurable effects on the hydrological cycle of a catchment. Sponge landscapes are comprised of building blocks called sponge measures, which can be expanded, replicated or combined with other water retention measures to improve sponge functioning on the landscape scale. Both rural and urban areas play a role creating an overarching sponge landscape. Sponge Scapes, From Drainage to Water Retention: advancing a paradigm shift towards sponge landscapes for enhance climate resilience (2024).

29 S Netherer et al, Drought increases Norway spruce susceptibility to the Eurasian spruce bark beetle and its associated fungi, The new phytologist foundation (2024).

WHAT'S NEXT FOR THE LULUCF REGULATION

A wide variety of options are available to protect and enhance carbon stocks in all land categories including protecting natural forests, sustainable forest management, and relying on sponge landscapes as discussed above. The EEA provides a summary of mitigation options to be carried out in the land sectors covered by the LULUCF Regulation with relevant co-benefits and risks[30]; and underlines that in view of the increasing effects from climate change on terrestrial ecosystems, resilience of the sector against exacerbating natural disturbances is a key pre-requisite for effective mitigation.

In view of the recent amendment to the European Climate Law, setting a 2040 climate target, and ongoing discussions at the political and technical level about the implementation of the new 90% emissions reduction target by 2040 (including 5% international credits), the future of the LULUCF Regulation is uncertain. In its current form, the Regulation lapses in 2030, with these recommendations WWF outlines key criteria for the future of the Regulation after 2030. These recommendations should be read in conjunction with WWF position paper on post-2030 emissions and removals targets, laying down high level principles and safeguards for the upcoming climate package revising both the LULUCF and Effort Sharing Regulations.



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30 European Environmental Agency, Enhancing Europe's land carbon sink (2025) Report 17/2024.

GENERAL PRINCIPLES REGARDING THE TARGET

1. **The LULUCF Regulation should continue** in its current form or as a separate pillar within an economy-wide target for the period 2030-2050 as a minimum to fulfil the 2040 climate target and the climate neutrality target in 2050.

2. **The LULUCF sector should be kept separate**. This means for example that agricultural non-CO_2 emissions or permanent removals[31] should not be included in the LULUCF Regulation, and that land-based removals are not used to offset emission reductions in other sectors.

3. **The EU should set an EU level binding target for the LULUCF sector of at least 400MtCO$_2$-eq removals per year.** The pathway from 2030 should be linear and take into account the projected deficit in 2030. This target is in line with the potential identified by the ESABCC report[32] and is close to the European Commission Impact Assessment on 2040 climate target under the LIFE scenario. Other scientists and research institutes even point toward a potential significantly exceeding this number.[33] A progressively higher target compared to 2030 would be aligned with international law and protect the EU and Member States from legal challenge as a WWF legal briefing points out. Binding targets should not be substituted by aspirational targets: doing so would weaken accountability mechanisms and reduce certainty that Member States will deliver the level of action needed to achieve EU climate targets.

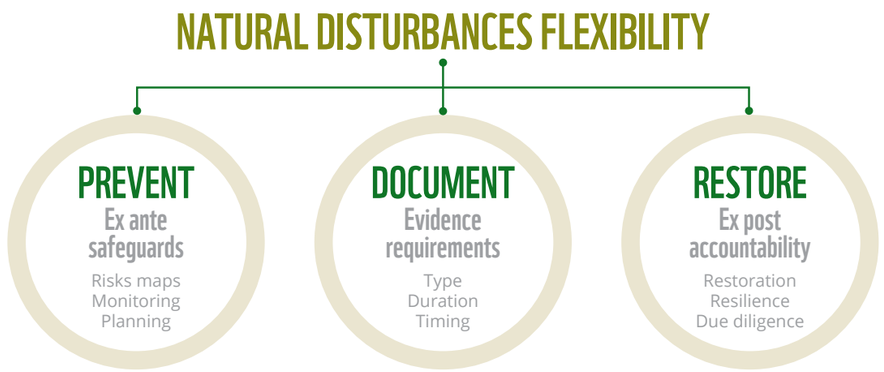
4. **The EU level target should be implemented through the sum of binding national targets**. National LULUCF targets should be distributed to reflect mitigation potential/hectare on managed land, biophysical conditions and ecological constraints while embedding principles of equity, solidarity, and differentiated responsibilities.

5. **The EU should maintain the national five-year targets accompanied by annual limits** set in a linear trajectory after 2030 for the LULUCF sector.

6. **International credits (Article 6 Paris Agreement) should not be used for compliance with national targets set by EU legislation.** Member States should not use these credits to comply with the LULUCF national targets.

IMPROVING THE CURRENT FRAMEWORK POST 2030

7. **Flexibilities following natural disturbances in the land sector should continue after 2030 but must be strengthened with key safeguarding principles and mandatory monitoring and planning to help Member States enhance the resilience of their land ecosystems.** Under the current LULUCF Regulation, Member States already have access to a discount in the land sector inventories for emissions and loss of sink caused by natural disturbances. Some level of flexibility should continue for the 2040 framework, but accounting rules should not allow Member States to mask structural shortcomings in land use practices. A clear framework is needed across the process. First of all, we need (1) **strong *ex ante* measures**: including risk mapping, biodiversity and ecosystem monitoring, and integrated landscape planning aligned with climate, nature and water legislation aimed at reducing the likelihood and severity of natural disturbances; (2) further, **the Member States must be able to document**



31 Permanent removals are fundamentally different to nature-based removals in their level of permanence, monitoring and accounting is unequal, and co-benefits generation. The methodologies for land-based permanent removals under the Regulation 2024/3012 on EU certification framework for permanent carbon removals, carbon farming, and carbon storage in products (CRCF) are seriously undermining the land sink due to their biomass accounting which cannot guarantee removals from the atmosphere, and must be drastically improved to ensure environmental integrity, climate benefits, and additionality.

32 European Scientific Advisory Board on Climate Change, Scientific advice for the determination of an EU-wide 2040 climate target and a greenhouse gas budget for 2030–2050 (2023).

33 Oko-Institut, Exploratory Analysis of an EU Sink and Restoration Target (2021). G Nabuurs, By 2050 the Mitigation Effects of EU Forests Could Nearly Double through Climate Smart Forestry (2017). Umwelt Bundesamt, Assumptions on potentials for Carbon Dioxide Removals in the EU: A review of recent European Commission impact assessments, climate change 35/2024.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these disturbances with appropriate indication of the duration, period, and type of natural disturbance in a timely and accessible manner; lastly, (3) there must be **accountability for *ex post* measures**: restoration following the natural disturbance must be focused on ecosystem resilience, restoring the functions of the system designated as climate buffers. Restoration efforts and any update to preventive measures should be assessed together, with the Commission's recommendations followed by Member States under strict due diligence standards.

8. **The LULUCF Regulation should include conditionalities actively safeguarding biodiversity where flexibilities are allowed in GHG accounting.** The LULUCF Regulation should harness this opportunity to create stronger links with other climate, nature and water regulations. Clear and concrete links between the LULUCF Regulation, the EU's biodiversity and nature restoration targets and objectives, the Water Framework Directive and upcoming European Framework for Climate Resilience targets are paramount. Ecosystems play and important role in cycling and storing carbon however some implementing measures to increase carbon storage in habitats can have adverse effects on biodiversity and ecosystem services. An example of this is planting monocultures, which can reach the short-term objective of rapidly sequestering carbon, however at the cost of biodiversity and ecosystem services.[34] If biodiversity and co-benefit conditionalities are strengthened, this can be avoided. Different trade-offs need to be carefully weighed up to make sure that climate change mitigation policy and related actions will not disproportionately affect nature conservation and restoration objectives, or the other way around.

9. **The EU should improve and harmonise the reporting requirements of coastal wetlands (mangroves, seagrass, and salt marshes) in the LULUCF Regulation to ensure the data is comparable across the EU**. This is important, given that scientific knowledge on blue carbon has high variability in accuracy, reliability and findings. There is the need to strengthen monitoring, research and data-sharing on the ocean's role as a carbon sink. Available studies for vegetated ecosystems indicate that carbon removal potential of coastal blue carbon ecosystems in the EU may be relatively modest. Estimates from individual regional studies suggest a range of 0-5 Mt CO_2 per year.[35] These ecosystems are only a subset of blue carbon and studies suggest that a significantly higher amount of carbon is stored in other sites offshore (for example in kelp and offshore sediments). Further integration of blue carbon into the EU's climate architecture must therefore come hand in hand with further research on all types of blue carbon, from coastal habitats to offshore marine sediments, to understand their full carbon sequestration potential (without causing any mitigation deterrence) and role in environmental services. This recommendation is also in line with the EEA which calls on the Commission and Member States to investigate measures to stimulate and/or safeguard carbon storage in the marine environment since only limited types of habitats have been considered to date.

34 European Environmental Agency, Carbon stocks and sequestration in terrestrial and marine ecosystems: a level for nature restoration (2022).

35 European Scientific Advisory Board on Climate Change, Scaling up carbon dioxide removals – Recommendations for navigating opportunity and risks in the EU (2025).

10. **Monitoring Reporting and Verification (MRV) of the LULUCF GHG inventories should move to Tier 3**. Methods to estimate GHG emissions and removals can vary significantly regarding the level of complexity (there are three levels: Tier 1, 2 and 3). Tier 3 methods are advanced methods based on data from field measurements and modelling. LULUCF MRV by the Member States should improve in accuracy over time, and Member States will be adopting Tier 3 in their GHG inventories by 2030. Transparency, standardised monitoring systems in the Member States, and strengthened capacity and collaboration are essential for credible and effective climate accounting in the land sector.

11. **The EU should carefully assess the need for new methodologies for harvested wood products** in line with the best available science and the International Panel on Climate Change (IPCC). While the methodologies might need to be updated, WWF cautions against an overexpansion of the category and excessive incentives to promote more harvested wood products, as the European Commission has found that "until 2050, the potential additional benefits from harvested wood products and material substitution are unlikely to compensate for the reduction of the net forest sink associated with the increased harvesting."[36]

12. **The Commission should be able to exercise more pressure on Member States to make sure that they reach their respective targets via enforcement mechanisms.** There should be an annual compliance check by the Commission based on the annual limit values, with appropriate recommendations for non-compliance, and penalties if the five-year targets are missed. Member States should undertake additional measures based on recommendations of the European Commission.

13. **Lack of compliance with the Commission recommendations should also be subject to financial penalty**. Revenues generated from the penalties related to the LULUCF Regulation must be used to finance activities that can enhance and protect carbon reservoirs such as activities that fall under the implementation of Regulation 2024/1991 on nature restoration.

ACCOMPANYING POLICIES

14. **The EU Commission should address policy inconsistencies that harm the land sink**. The ESABCC report "Towards EU Climate Neutrality" has already identified several policy inconsistencies and gaps across the EU climate framework that affect the land sink.[37] For example, the potential to maintain and expand the area of forests and wetlands is **undermined by EU policies on agriculture and biofuels**, which are driving land use for agricultural production.[38] Furthermore, the carbon sink in EU forests is under pressure from multiple factors, including **wood demand for the EU bioeconomy and for energy**. To keep aggregate demand for biomass within sustainable limits while ensuring sufficient supply, incentives for bioenergy use for primary woody biomass and dedicated crops should be phased out; incentives should be better targeted towards end-use sectors with limited other mitigation options.[39] The potential of reducing CO_2 emissions and emission removals in other land use categories (mainly agricultural land) remains under-addressed by EU policies.[40] The latter is further explored in the recent ESABCC report "Climate adaptation and mitigation in the agri-food system" that sheds light on specific harmful Common Agriculture Policy payments, such as decoupled payments for drained peatlands: a practice that is harmful to mitigation and adaptation (estimated at EUR 2.5 billion during 2023– 2027, 1% of the CAP budget).[41] A WWF-commissioned study found that in the current EU budget, €31.4 billion to €32.1 billion annually from the CAP, corresponding to at least 58-60% of the funding, can be considered harmful to nature. Lastly, the **current methodologies for land-based permanent removals** under the Carbon Removals and Carbon Farming Regulation (CRCF) risk seriously undermining the land sink due to their (lack of) accounting of biogenic emissions, which cannot guarantee genuine removals from the atmosphere. These methodologies must be drastically improved to ensure environmental and scientific integrity.

15. **Member States should be required to assess their level of harvesting and make appropriate considerations on its impact on the LULUCF sink**, including when necessary, implementing policy measures aimed at the reduction of harvesting levels. This is because, as identified above, harvesting is the main driver of the decline of the sink in the LULUCF sector. This obligation should be included in the Governance Regulation also expected to be reviewed in Q4 2026.

16. **The EU Commission should carry out an EU-wide assessment of sustainable biomass availability to ensure biomass demand is kept within planetary boundaries limits**. Commission and Member States must prioritise its use for sectors or purposes where it will add the highest value and/or deliver the greatest climate benefit.

17. **Member States should comply with the obligation stemming from the Governance Regulation and ensure they have comprehensive, reliable statistical data on bioenergy demand and supply by feedstock and origin, and for forest biomass assess its source and impact on the LULUCF sink**.[42] This information must be made available in a timely, accessible and transparent manner. These considerations should affect the forest management decisions in a Member State.

18. **Additional reporting requirements to enable better LULUCF policy planning should be included in the Governance Regulation**. All possible data should be organised within the GIS system. The GIS level of accuracy should be as high-resolution as possible, determined per indicator. The following reporting indicators shall be included either in Annex I or IV of the Governance Regulation:

    - Mapping of all forests and forest habitats particularly those that fall within the scope of the following legislations: Nature Restoration Regulation, Birds and Habitats Directive, Soil Monitoring Regulation, Water Framework Directive and EU Deforestation Regulation.
    - Monitor the status of different forest habitats and related plant and animal species, including the condition and conservation status of primary and old-growth forests, and status of Red List Species (IUCN).
    - Monitor the status of natural disturbances with geographical information systems, GIS, when possible, to understand how EU's forests are responding to pressures such as drought, fire, wind, and insects' outbreaks, and which forests (types of, features of, locations of) are proving most vulnerable or resilient. Relevant indicators to consider are e.g., causes of fires, fire return intervals of forests, forests vulnerable to fire, usage of prescribed burning, drought risk data, and mapping of pollution.
    - Provide information about forest management types and areas covered by those management approaches (e.g. close to nature forest management, clear cut areas) and how it links to wood production, processing and use in a given country.
    - Forest carbon accounting including all the LULUCF carbon pools (above-ground biomass, below ground biomass, dead wood, litter, organic soil carbon);
    - Monitor and map traditional lands of Indigenous and forest-dependent communities (Global Biodiversity Framework), managed by them or with Free Prior and Informed Consent.

19. **Member States should provide targeted support for forest owners, contractors, and local communities**. The decrease in harvesting intensity which will be required in many locations to ensure a healthy long-term forest carbon sink will have an impact on revenues for forest owners, contractors, and local communities. To counterbalance the impact, we need:

    - Clear regulation and sustainability criteria as the basis for understanding the transition required and underpin long-term planning.
    - Context-specific transition plans to support impacted stakeholders with tailored technical and



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36 European Commission, Questions and Answers: European Green Deal: new EU Forest Strategy for 2030 (2021).
37 European Scientific Advisory Board on Climate Change, Towards EU Climate Neutrality (2024).
38 ibid p. 182.
39 European Scientific Advisory Board on Climate Change, Towards EU Climate Neutrality (2024), p. 182.
40 ibid p. 183.
41 European Scientific Advisory Board on Climate Change, Climate adaptation and mitigation in the agri-food system – Recommendations for coherent EU policies (2026) p.12.
42 Article 20(a)(4) and Annex I Regulation 2018/1999 on the Governance of the Energy Union and Climate Action and Article 29(7a) Directive 2018/2001 on Renewable Energy.

financial measures, noting that smaller economic actors are most vulnerable to regulatory change and market shifts.

- Support measures including temporary compensation for reduced harvest intensity, support for restoration activities, technical assistance and access to finance and training for economic diversification and the development of alternative value chains.
- Transition support to enable income generation via higher-value lower volume production, including through wood products with long lifetimes, non-wood forest products, ecotourism, recreation and restoration services.
- Extensive stakeholder engagement and public participation for understanding local needs and capacities and ensuring ownership of transition plans.

20. The European Commission and Member States should prepare to fully implement the EU Deforestation Regulation to mitigate risks of deforestation, forest degradation and illegality in EU and global supply chains. The Regulation is expected to be implemented from 30 December 2026. Deforestation is still occurring in the EU-27 causing approximately 30 $MtCO_2$-eq emissions per year.[43]

21. Incentives for carbon farming credits are welcomed but should not substitute ambition and accountability in the LULUCF Regulation. The activities incentivised by the CRCF carbon farming credits can be useful for reaching LULUCF targets and objectives. Carbon farming credits includes for example rewetting of peatlands, soil carbon management activities, agroforestry practices, etc. However, investments by Member States in these credits should not be used as a flexibility tool nor can they substitute an ambitious LULUCF target by 2040, rigorous accounting in line with the IPCC rules and accountability of the Member States. CRCF credits and the LULUCF target are not inter-changeable. Their MRV is completely different and not reconcilable. Should the MRVs be brought closer together, we also see a risk of double counting between LULUCF accounting and the CRCF MRV. Furthermore, the current robustness of CRCF methodologies has been subject to criticism by civil society. Civil societies have specifically called out the calculation of biodiversity co-benefits, derogations from additionality requirements, flexibility in calculating the net climate benefits, and a lack of safeguards to ensure the continuation of practices and mitigate non-permanence risks.[44]

22. The European Climate Resilience and Risk Management Integrated Framework should introduce synergies with the LULUCF Regulation. The framework should include a requirement for Member States, when updating their National Adaptation Strategies or Plans (NAS or NAPs), to identify synergies with the policies and measures adopted at national level for the implementation of the national LULUCF targets which are the most relevant to climate resilience, integrate those relevant measures and policies in the NAS or NAPS, and where relevant, strengthen them.



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43 IEEP, EU LULUCF sink development until 2040: Trends, projections and uncertainties (2025) p. 6.

44 For example, see Carbon Market Watch, Faulty to the core (June 2026).



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PUBLIC INVESTMENTS

23. The Commission and Member States should re-direct the harmful subsidies identified in the section on the policy consistency to activities that increase the land sink, support ecosystem resilience, and biodiversity. Only by restoring carbon-rich ecosystems and aligning forestry and farming with climate, biodiversity, and social goals can the EU ensure a resilient and equitable land-use future. WWF sees the following activities which should be incentivised as they are aligned with climate and biodiversity objectives: strict protection and restoration of primary and old-growth forests, rewetting of peatlands, close-to-nature afforestation, reforestation and forest ecosystem restoration, avoiding conversion and degradation of wetlands and organic soils, close to nature forest management and agricultural soil management soil practices, landscape management planning, including sustainable forest management and spatial planning for creating more diverse and resilient landscapes, and demand policy measures (such as policy measures aimed at dietary change, circularity of bio-based products).

24. The EU Commission and Member States should improve investment clarity under the Governance Regulation. The Commission should require more granular information on medium- to long-term investment needs in LULUCF, including underlying assumptions by sector and decarbonisation lever (e.g. national sectoral pathways). This should cover infrastructure needs and expected sources of finance (public and private). The NECPs should also set out concrete measures to mobilise private investment and ensure meaningful involvement of financial institutions in their preparation. Furthermore, within the Governance Regulation, WWF would like to use investor-relevant indicators (e.g. permitting timelines, grid connection times, and progress on sectoral pathways) to make NECP targets and delivery more transparent, credible, and trackable for investors and stakeholders.

25. The Commission and Member States should strengthen territorial investment planning. Territorial investment planning is based on place-based approaches and must draw upon participatory planning involving all relevant stakeholders and local communities. EU and national funding instruments and strategies should ensure support to well-designed 'bottom-up' transition plans that promote economic diversification and resilient communities. Lessons should be taken from initiatives such as LEADER/CLLD and the Just Transition Mechanism for the development and implementation of effective place-based support.



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