

CFA Newsletter



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King Charles thanks people who planted trees for scheme



King Charles and Prince William planted the final tree of the Queen's Green Canopy (Getty Images P/A)

King Charles has thanked people involved in the Queen's Green Canopy (QGC) after it was announced the scheme has planted more than three million trees. The project which was launched in May 2021 to mark the Queen's Platinum Jubilee was extended when Queen Elizabeth II died so that people could plant memorial trees.

As it came to an end, the King offered his "heartfelt thanks" to the people across the UK who planted the trees. "This project has shown how simple, practical and positive gestures can make a big difference, and I can think of no more fitting tribute to Her late Majesty's 70-year reign."

When the Queen's Green Canopy was launched in May 2021 communities,

schools, gardeners and companies were encouraged to plant trees to celebrate the Queen's Platinum Jubilee. The project was to create a lasting tribute to Queen Elizabeth II, but also to help protect the environment.

In celebration of the end of the scheme the King and the Prince of Wales planted one of the final trees, an acer, in the gardens of Sandringham House, one of the royal residences. Naturalist and broadcaster Sir David Attenborough, an ambassador for the scheme, planted a tree in Richmond Park to mark the closure of the second planting season. He said: "The Queen's Green Canopy has created an invaluable national legacy for our children, future generations and the planet itself."

CFA Newsletter

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The Queen launched the Green Canopy scheme in 2021 to encourage the public to plant more trees (PA Media)

Some of the people who have been involved in the Queen's Green Canopy feature in a special film about the project. A film has also been released with the story of the project narrated by actor and QGC ambassador Dame Judi Dench.

The QGC organisers have announced it will fund the planting of a specimen tree in 98 areas across the UK later this year, to mark the coronation of King Charles III.

bbc.co.uk

Association News

Commonwealth Day celebrations: a first for our Patron as monarch



King Charles III meeting the CFA's new Finance Manager, Peter McCarter, at the Commonwealth Day Reception at Buckingham Palace.

Commonwealth Day took place on Monday 13 March, 2023, marking the beginning of a week-long series of events and activities around the globe – including faith and civic gatherings, debates, school assemblies, flag-raising ceremonies and cultural events.

Commonwealth Day 2023 marked the tenth anniversary of the signing of the Commonwealth Charter, which was signed by Her late Majesty Queen Elizabeth II on 11 March 2013.

This was the first Commonwealth Day since Her Majesty's passing, and the first presided over by His Majesty King Charles III as King, Head of the Commonwealth and CFA Patron.

The Commonwealth Day Reception was hosted by King Charles at Buckingham Palace and attended by our Finance Manager, Peter McCarter, who took the opportunity to thank His Majesty for his continued support.

Forest Scenes

How sustainable are yields in plantation silviculture? Evidence from Eswatini



Julian Evans and son, Stephen, recording growth in Usutu Forest.

In a recent article in the Quarterly Journal of Forestry (January 2023 Vol 117 No.1) Professor Julian Evans reviews half a century of data from one of the world's major pine plantations and reveals that yields are sustained through successive rotations.

The question of whether plantation forestry follows the well-reported trend in agriculture of declining yields following the continuous cultivation of the same crop in the same field is critical to the success of commercial forestry. It is an issue which has fascinated Professor Julian Evans who has carried out a detailed analysis of data from The Usutu Forest in Eswatini (formerly Swaziland).

Clear felling of the first rotation of mostly pine (*Pinus patula* and *P. taeda*) began in 1962, followed by immediate replanting. By 1967 the health of these replanted stands was concerning, appearing in some cases chlorotic. As a consequence, a network of sample plots was established which revealed that over most

of the forest no decline was found, but in about a sixth of the area a serious yield reduction was present.

The continued measurement of the long-term productivity sample plots throughout subsequent rotations (up to the most recent, the fifth rotation) has concluded that each rotation of pine in the Usutu Forest is growing as well as or better than its predecessor.

The fact that there is no yield decline problem concurs with evidence elsewhere and Professor Evans explains that we shouldn't be surprised because, unlike farmers, who deliberately grow and harvest the nutrient-rich parts of their crops (the ear of corn, the fruits, the leaves), foresters leave them all behind, harvesting only the nutrient-poor parts, namely the trunk of celluloses and lignin.

In conclusion, Professor Evans suggests that, with good husbandry, plantation silviculture is wholly sustainable in the narrow sense of long-term productivity.

Quarterly Journal of Forestry (January 2023 Vol 117 No.1)

Investing in trees: global companies are protecting and restoring forests



The sustainable management of forests by investing in trees could create \$230 billion in business opportunities worldwide by 2030. Image: UNSPLASH/Kazuend

- \$44 trillion, the equivalent of about half global GDP, is at risk due to nature-loss.
- Over 80 companies have committed to investing in trees by conserving, restoring, and growing over 7 billion trees in over 65 countries.
- The global goal to conserve, restore and grow 1 trillion trees is ambitious but achievable.

Conserving and restoring degraded forest landscapes is essential to combating global climate change and preventing biodiversity loss. A number of companies have pledged to help grow 1 trillion trees in the next seven years, with more due to come on board.

The impact of restoring trees around the world

Companies from across sectors are working together through the World Economic Forum's 1t.org initiative, which serves the global movement to conserve, restore and grow 1 trillion trees by 2030. More than 80 companies have pledged over 7 billion trees in over 65 countries. Since COP27 in November 2022, new pledges from nine companies have been welcomed, including the first four Indian companies – Vedanta, ReNew Power, CSC Group and Mahindra.

Organizations work collaboratively through the 1t.org Corporate Alliance. Member companies commit to boosting their local communities and forests, and to implementing a Paris Agreement-aligned target to reduce emissions. The Corporate Alliance brings companies together under a shared goal of protecting the environment and working sustainably, and connects enterprises with 1t.org's community of innovators, partners and regional chapters.

Companies from diverse sectors such as mining and automotive manufacturing are investing in forest conservation and restoration. Meta has partnered with the National Indian Carbon Coalition (NICC) to ensure that carbon-reducing plans include the leadership, traditional ecological knowledge, and vision of Indigenous peoples. Mahindra has also committed to planting over 1 million trees per year through its Project Hariyali initiative, and has already planted over 20 million trees. Its aim is to create

functional forests for local communities to enhance the livelihoods of smallholders and marginal farmers while restoring forest ecosystems. This work is in line with the World Economic Forum's efforts to guide companies to use Indigenous knowledge in the conservation and restoration of landscapes.

What's the challenge facing global forests?

Forests are critical to the health of the planet. They sequester carbon, regulate global temperatures and freshwater flows, recharge groundwater, anchor fertile soil and act as flood barriers. They harbour 80% of the world's terrestrial biodiversity, provide habitats for many species, and are a source of subsistence for 350 million people.

Degradation and loss of forests are destabilizing the planet on a scale unseen in human history. We have lost nearly half of the 6 trillion trees that existed on Earth before the onset of agriculture 12,000 years ago. Each year we lose around 15 billion more.

The cost to business is increasingly evident. More than half of our annual global GDP, or \$44 trillion, is potentially threatened by nature loss. As trees disappear, the services they offer are undermined, reducing the productivity of soils and natural carbon sinks, diminishing our access to clean water and reducing our resilience to extreme weather events.

Our approach to supporting forests, local communities, and global decarbonization goals.

Launched at the World Economic Forum Annual Meeting 2020 in support of the UN Decade on Ecosystem Restoration, 1t.org supports the growing momentum on nature-based solutions to address climate change and nature loss.

1t.org brings private companies together under the Corporate Alliance, and the 1t.org Knowledge Exchange offers corporates curated knowledge and opportunities to share learnings and experiences. These learning materials help companies put ecologically and socially responsible approaches in place that contribute to the needs of forests, local communities, and global decarbonization goals. For instance, 1t.org profiles global standards like the IUCN Global Standard on Nature-based Solutions to help ensure planning is informed by local knowledge and scientific evidence.

With rapid advances in monitoring technology, 1t.org is collaborating with a group of partners to connect 1t.org's reporting process with geospatial platforms and ground-level data collection. Tentree's veritree, for instance, uses blockchain to validate successful planting efforts through collecting and sharing ground-level data. Restor informs and connects restoration initiatives, using geospatial data layers.

1t.org is especially focused on driving impact in priority regions including:

- The United States through our 1t.org US Chapter co-led by American Forests
- 1t.org Mexico Chapter co-led by Reforestamos and the AMERE coalition
- African Union's Great Green Wall for the Sahara and the Sahel Initiative

- 1t.org China Action co-led with China Green Foundation under the guidance of the National Forestry and Grassland Administration
- Amazon Basin by focusing on the transition to a sustainable bioeconomy- India through the 1t.org India Platform

Through the 1t.org US Chapter, launched in August 2020, subnational governments and the US-based non-profit community alone have pledged over 50 billion trees by 2030. With regional working groups on topics such as forest carbon, US policy and urban forestry, the US Chapter demonstrates the power of business, government and civil society working together to protect and restore forests.

In March 2022 the 1t.org India Platform was launched to support the country's commitments under the Paris Agreement to restore 26 million hectares of deforested and degraded land by 2030. And at the World Economic Forum Annual Meeting 2022, China's Special Envoy for Climate Change announced that, with the World Economic Forum and China Green Foundation, China will plant and conserve 70 billion trees by 2030.

1t.org and the Global Landscapes Forum's Youth in Landscapes Initiative have co-convened the #GenerationRestoration Youth Hub, a diverse global network of over 80 youth ecopreneurs, practitioners and activists.

In partnership with UpLink, the Forum invites partners to launch and support innovation challenges to address issues relating to the natural world. Organizations can then sign up to propose solutions to the challenges. There have been over 10 global challenges – including Trillion Trees, #GenerationRestoration, and Carbon Market Challenges – as well as regional challenges in India, the US, the Amazon and the Sahel. Combined, these have resulted in over 1,000 submitted solutions, and a cohort 137 recognized Top Innovators that is being supported through dedicated accelerator programmes.

How can you get involved?

Collaboration and partnerships are key to meet the trillion trees vision.

We encourage companies that have committed to set a company-wide emissions reduction target, such as a 1.5C Science-Based Target or credible net-zero goal by or before 2050, to pledge their forest commitments.

Companies can also support 1t.org's vision to conserve, restore and grow 1 trillion trees by 2030 by pledging their forest commitments through the 1t.org Corporate Alliance.

The global goal to conserve, restore and grow 1 trillion trees is ambitious but it is achievable. Join the movement.

weforum.org

Pope Francis receives indigenous leaders who call for climate justice



© VATICAN NEWS

Meeting with Pope Francis today, 40 indigenous leaders raised their concerns about the toll that extractive and exploitive industries fuelling the global economy were having on growing inequality,

preventing access to basic human rights and hindering environmental sustainability.

The indigenous leaders, who were in Rome to attend the 6th Global Meeting of the Indigenous Peoples' Forum hosted by the

International Fund for Agricultural Development (IFAD), hand delivered their message during a private audience with His Holiness, Pope Francis.

“The dangers facing our world have not only persisted since our last encounter in 2019 but have grown even more dire in many respects. Human beings continue to destroy nature, pollute our waters, and ignite our jungles and forests,” said the indigenous leaders in their message.

The scramble for natural resources in areas where they live, including timber-rich rainforests and mineral-rich mining areas continues to see encroachments on Indigenous Peoples’ lands and territories by extractive industries. The lack of effective support and protection often leads to a variety of incidence of intimidation, extreme violence and even assassination. In 2020, over one-third of the 227 climate and environmental activists murdered globally came from indigenous communities; almost three out of four murders took place in Latin America.

IFAD President Alvaro Lario, also in attendance, emphasized the role of Indigenous Peoples as climate leaders who are essential to protect biodiversity and ensure a viable future on Earth for future generations.

“No one, no agronomist or development professional will ever understand nature as deeply as the Indigenous Peoples. Nurtured over millennia, their knowledge of the Earth’s plant and animal life remains unrivalled,” said Lario.

More than 476 million people from 90 countries define themselves as Indigenous Peoples. And while they represent roughly 6 per cent of the world’s population, they account for 18 per cent of the world’s poorest people. Seven out of 10

are native to the Asia and Pacific region. Indigenous Peoples help preserve a significant portion of the world’s biodiversity extending across one-quarter of the globe’s surface.

“Indigenous Peoples are displaying tremendous resilience and creativity as climate leaders and stewards of nature. They are crafting practices and applying unique approaches that are invaluable in confronting the climate crisis,” added Lario.

Despite their traditional knowledge, the climate crisis is seriously threatening their livelihoods. Farming, pastoralism, shifting cultivation, rotational agriculture, fishing, and hunting and gathering are all dependant on a predictable climate. Indigenous Peoples are particularly vulnerable to the effects of the climate crisis due to their close relationship with the environment.

Communities continue to defend their rights, as reflected in the UN Declaration on the Rights of Indigenous Peoples, and seek spaces for effective collaboration and advocacy in national and international fora such as this week’s forum at IFAD, while they fight for a place in the global climate debate, and be part of decisions that affect them.

Meanwhile, the right to free, prior and informed consent (FPIC), including the right of Indigenous Peoples to participate in any decision-making processes that affects them, continues to be overlooked by many, due to a lack of awareness, understanding and recognition of their perspectives, actions and governance systems.

ifad.vuelio.co.uk

Nourishing leadership: why gender matters in development science

Q&A with CIFOR-ICRAF food and nutrition scientist Mulia Nurhasan

As a food and nutrition scientist in CIFOR-ICRAF, Mulia Nurhasan leads the execution of the food and nutrition component of environmental projects, mostly in Indonesia. Her team comprises four nutritionists, geospatial analysts, and a livelihood specialist. She also leads collaboration between CIFOR-ICRAF and partner institutions, supporting the implementation of research projects in the field. Mulia has a bachelor degree in post-harvest fishery, a master’s degree in international fisheries management, and has a PhD from the University of Copenhagen, Department of Human Nutrition. She is actively involved in advocating for a sustainable food systems agenda in Indonesia.

Q: What does your work look like on a daily basis?

A: My work involves leading the design of projects, building research protocol, liaising with partners institutions, managing research and researchers in the field, managing data analysis, leading the interpretation of findings, leading the process of research publication and writing proposals for research funding.

Q: Why did you become a scientist? What motivates you in your work?

A: I began my career working in development. I knew it was the kind of work I wanted to do from the beginning – I love going to the field, meeting communities, getting to know people with various backgrounds, and contributing to development processes. I am also curious about things, question the mainstream, and love to investigate, write, and share what I find. So being a researcher in development fits my character. But I didn’t know that one could be a researcher in development: I thought researchers belonged to academia, and development was another world. Towards the end of my PhD, things unfolded for me. I met my current mentor, Amy Ickowitz – a senior scientist at CIFOR-ICRAF – with whom I decided to work continuously for sustainable food systems through science and development.

Why is it important to have women leading in science? Do you have a specific example or story you can share?

A: I grew up in an environment that warns women to behave and conform to the general norms. For most of my life, when I speak up against or for something, I am often made to feel bad for doing so. Consequently, like many Asian women who grew up like me, we choose a leadership style that is low key and persuasive. This has been a good approach, but it also has



Scientist Mulia Nurhasan Interviews Ibu Bibit, a mangrove fisher in Banyuwangi. (© Aristyawan Cahyo Adi/INFIS)

consequences. Sometimes people don't see women as leaders, doubt our capacity to lead and manage, and hesitate to give us big responsibilities. In many cultures, leading is dominating, leaders must show masculine characteristics.

I feel very fortunate that throughout my career, especially at CIFOR-ICRAF, I have met with great women in science who have many different styles coming from various backgrounds, and they are great scientists, great leaders too! They make me realize that we women do not have to hide our true colours, character and femininity. We can still be great leaders by being who we are and who we are meant to be.

Women of different characters who have taken on leadership roles are playing a vital role in educating our society to accept and provide equal opportunities for women to lead. Their courage to stay true to their characters and bring new types of leadership styles not only inspires more women to embrace their authentic selves but also empowers them to pursue leadership positions. It is not always easy for women

to step up to leadership roles. Many of us are not nurtured or shaped for it. But it is unthinkable to design, conduct, and write research without or with very few women in your science group, when half of the target population in research and development work is women. Therefore, women leading in science is a prerequisite to success in our work.

It is not always easy for women to step up to leadership roles. Many of us are not nurtured or shaped for it. But it is unthinkable to design, conduct, and write research without or with very few women in your science group, when half of the target population in research and development work is women. Therefore, women leading in science is a prerequisite to success in our work.

Mulia Nurhasan, CIFOR-ICRAF scientist

forestsnews.cifor.org

Boreal forests could be a planet-warming 'time bomb' as wildfires expand

The world's most northerly forests could be a "time bomb" of planet-warming pollution as expanding wildfires have released record high levels of planet-heating pollution into the atmosphere, according to a new study. Using new satellite data analysis techniques, researchers found that, since 2000, summer wildfires have expanded in boreal forests, which wrap around the northernmost parts of the Earth.

Boreal forest fires usually make up 10% of global wildfire-related carbon pollution. But in 2021, their contribution soared to 23%, according to the study, as extreme drought and heatwaves in Siberia and Canada helped drive intense fires.

"Boreal forests could be a time bomb of carbon, and the recent increases in wildfire emissions we see make me worry the clock is ticking," said study author Steven Davis, a professor of earth system science at the University of California at Irvine, in a press release.

These forests, which cover huge swaths of Canada, Russia and Alaska, are the world's largest land biome. They are also carbon dense, releasing 10 to 20 times more planet-heating carbon pollution for each unit of area burned by wildfires than other ecosystems, according to the study. Boreal forests are one of the fastest warming biomes on Earth, and warmer and drier fire seasons are contributing to expanding wildfires.



Smoke from a forest fire in the republic of Sakha in Siberia, Russia, in July 2021. (Dimitar Dilkoff/AFP/Getty Images/FILE)



Canadian boreal forest to the west of Baie-Comeau, Quebec, pictured in August 2022. (Ed Jones/AFP/Getty Images)

Russia's Siberian region experienced particularly bad wildfires in 2021 which burned nearly 45 million acres (18.16 million hectares) of Russian forest in 2021. In July that year, reconnaissance pilot Svyatoslav Kolesov told CNN he couldn't fly his plane in the far eastern Russian region of Yakutia because smoke from the fires was so thick.

The region is prone to wildfires and much of the land is covered in forests, but Kolesov said something has changed. "New fires have appeared in the north of Yakutia, in places where there were no fires last year and where it had not burned at all before," he said.

Wildfires are becoming larger and more intense and they are also happening in places that aren't used to such extreme fires. The situation is likely to worsen as temperatures rise, study author Bo Zheng, an assistant professor at Tsinghua University in Beijing, told CNN via email.

Higher temperatures encourage the growth of vegetation, which then becomes exceptionally dry during heatwaves, increasing the risk of wildfires. "We are facing dangerous positive feedback between climate and boreal fires," Zheng said.

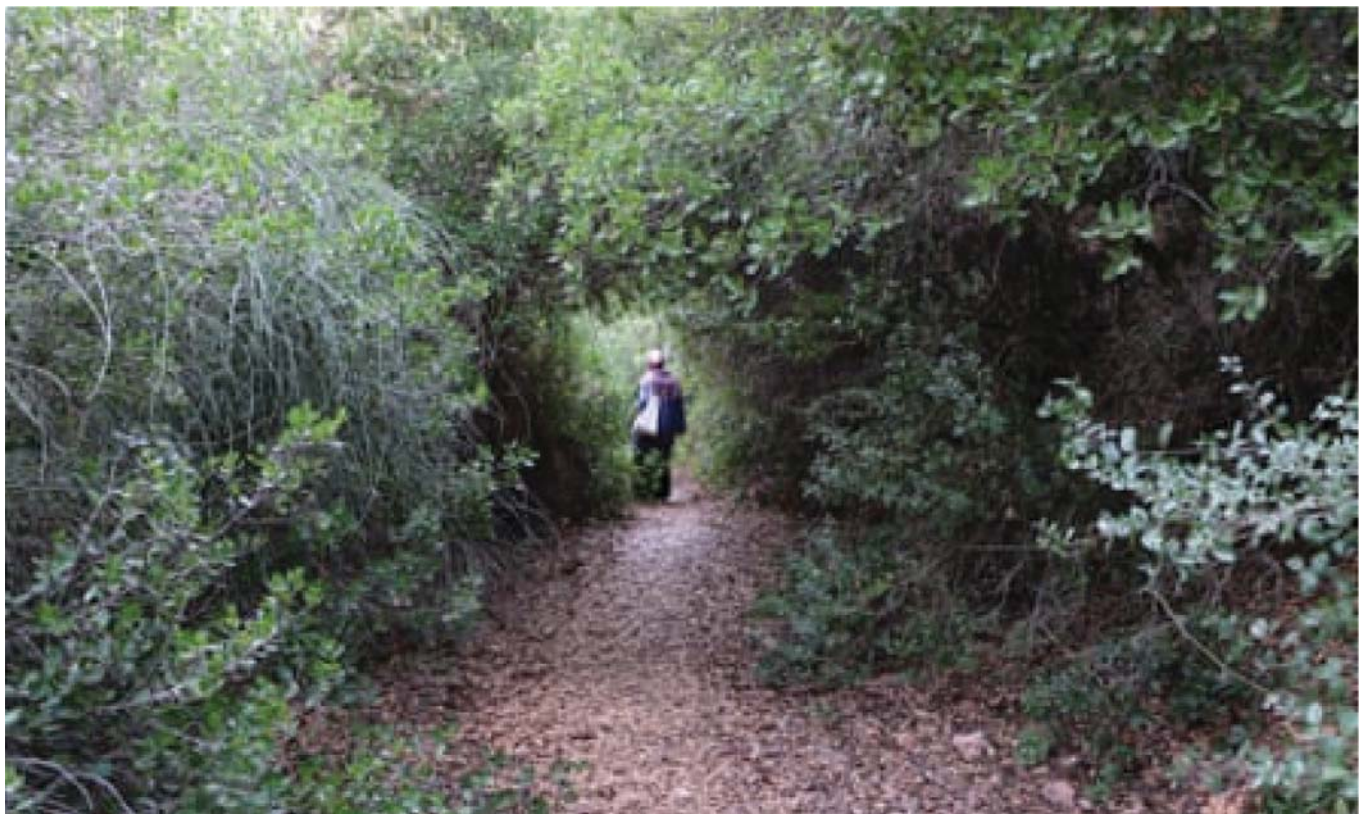
"Heatwaves and droughts are likely to occur more frequently over the boreal region, and the frequency and intensity of extreme wildfires like those in 2021 are likely to increase, with the release of CO2 emissions in turn leading to further global warming," he added.

Jeff Wells, the vice president for boreal conservation at the conservation organization National Audubon Society, who was not involved in the study, told CNN that he was not surprised that the study had found such a high level of carbon pollution from boreal fires. But, he said, "the size of the spike in 2021 is shocking." The findings are "yet another stark warning" of the need to "drastically reduce CO2 emissions," Wells said.

Wells also pointed to the role Indigenous communities play in protecting forests and peatlands. "It is time the world recognizes the leadership and knowledge of Indigenous peoples and their governments in the boreal and across the world in stewarding their traditional territories, especially in the face of the increase in the size and frequency of wildfires," said Wells.

edition.cnn.com

Greening the desert: the architect regenerating Jordan's native forests



Walking through Birgish, one of Jordan's very few woodlands. Photograph: Courtesy of Tayyun Research Studio

Walking along a path in Jordan's Birgish forest, one of the very few remaining patches of woodland in one of the world's driest countries, Deema Assaf is careful not to step on any of the delicate wild orchids. Deforestation and the climate crisis have

left the desert nation with just 1% tree cover. But Assaf, an architect, believes that with time, patience and new conservation techniques she can help turn it green again. "We once had dense forests," she says. "There were elephants, rhinos and the Asiatic lion – animals that used to coexist with people here."

Gazing up at an old oak, she says: “Discovering that made me see the landscape from a different perspective. It is fascinating to see the potential – if human intervention was not affecting it [the ecosystem] negatively.”

Now an “urban forester”, Assaf is an avid collector of information about Jordan’s native plants. She is also the founder and director of Tayyun, an Amman-based organisation that researches urban rewilding and regenerating ecosystems in cities.

After 10 years working as an architect, a visit to a nature reserve in 2017 – and the guilt she felt about being part of the increasing urbanisation of the landscape – led Assaf to look for more meaningful work.

She became involved in regenerative landscaping and native forest creation – often referred to as permaculture – after being inspired by a video by the permaculture consultant Geoff Lawton about a 2,000 year-old-forest in Morocco.

The film shows a human-made forest in an arid landscape, with a high canopy of foliage, palm trees like sleek pillars and walls of fruit trees creating cool dark glades with mottled light filtering through. The forest floor was carpeted with shrubs and grass. She decided this was what she wanted to do in her native Jordan.

Her research led her to the Miyawaki method from Japan, a way of planting saplings in a way that creates ultra-dense, multilayered native forests 10 times faster than it would regenerate naturally. The soil is analysed and improved, then four categories of native seedlings are planted: main tree species, sub-species, shrubs and ground-covering vegetation. The method



A nursery for the Tayyun rewilding project. Photograph: Courtesy of Tayyun Research Studio

has been adapted in several countries and has the potential to restore lost indigenous forests, a process that would normally take hundreds of years.

“Moving from architecture to urban rewilding and native forest creation simply felt like the right thing to do,” says Assaf.

Her approach goes beyond planting individual trees. It is about establishing a plant “community” in a living soil, reconnecting native species that co-evolved together for thousands of years, she says.

Jordan is mostly arid, and about 75% of it is desert, with rainfall scarce. According to the UN Food and Agriculture Organization, forests in Jordan cover only 975 sq km of Jordan’s 89,000 sq-km area (34,000 sq miles) or barely 1% of the country.

“It is not drought that causes bare ground – it is bare ground that causes drought,” she says.

The more we work on greening, the more we give nature the ability to restore itself, even in the driest places, she says. “Working with nature is a gentle yet firm call for patience, determination and faith to trust the process.”

Assaf started in 2018 when she was loaned a small site of 107 sq metres. She has gradually built a database of plants and trees for creating a native forest in Jordan. Today she organises workshops and offers opportunities for volunteers from all walks of life to join in with the planting of trees and harvesting seeds.

“We are constantly testing techniques; always learning, refining, and fine-tuning,” she says. So far, Tayyun has created four nascent forests, planting more than 2,700 native seedlings. The organisation also collects seeds for others, including those of Jordan’s endangered species.

Assaf is preparing her fifth forest with 1,100 native seedlings. Asked how she chooses a site, she says: “It is pretty simple: if it was once a forest, it could be a forest again. It is in the land’s DNA.”

By Rawan Baybars, Jordan. Supported by an ifa.de programme assisting civil society journalists around the world.

theguardian.com



‘Native forest creation simply felt like the right thing to do,’ says Deema Assaf, director of Tayyun. Photograph: Courtesy of Tayyun Research Studio

Natural rubber production driving responsible forestry

Many natural rubber users cannot claim that their rubber is sourced responsibly due to the highly fragmented market at the top of the supply chain. But a growing number of brands are using their influence to change that.

When most people think of forest products, they think of wood – lumber and building products – or pulp-based materials such as paper and cardboard. While it is true that these make up the bulk of forest products used on a regular basis in a myriad of final applications, the natural rubber value chain is also driving responsible forest management in increasingly impactful ways.

87 percent of natural rubber is produced in the Asia-Pacific region – with the majority in Thailand, Indonesia and Vietnam as it requires a hot, humid climate to grow. The tropical forests in these areas are of high conservation value and demand increased attention to mitigate further deforestation and critical biodiversity loss.

The properties of natural rubber cannot be replicated by synthetic rubber; and production volume directly correlates to global economic growth, doubling approximately every 25 years. Currently there are about 15 million hectares (37m acres) producing natural rubber globally. To complicate the situation further, natural rubber is on the short list of agricultural commodities linked to the most deforestation. Between 2000–2015, over 19,000 square miles of tropical forest were cleared for rubber plantations – equivalent to the land area of Costa Rica. This deforestation is occurring in the world's densest biodiversity hotspots for critically endangered species including elephants, orangutans, tigers, gorillas, and rhinos. Along with this, human rights abuses of local and indigenous communities including illegal land grabbing, child labor and modern slavery can occur.

68 percent of natural rubber goes to tires; 12 percent to latex products such as gloves, hoses, and condoms; 12 percent to industrial products; 5 percent to footwear and 3 percent to adhesives. The core reason many natural rubber users cannot claim that their rubber is sourced responsibly is due to the highly fragmented market at the top of the supply chain. Raw rubber is produced from latex, the sap of the rubber tree, and is harvested predominantly by smallholders with 5 hectares (approximately 12 acres) or less land under their supervision. It's then sold to middlemen – sometimes passing through 5 or more hands before being sent to manufacturing and processing, which are more highly concentrated markets. Thus, it is impossible to know where the rubber is coming from and under what type of forest-management practices.

Under the Forest Stewardship Council® (FSC) certification system, which creates habitat protection through buffer zones and cleaner water due to minimal use of chemical pesticides and fertilizers, we're seeing a dramatic increase in the amount of land and number of smallholders adopting responsible forestry practices.

An example is Agriac – formed in 2019 to improve the lives of small rubber plantation farmers in the south of Thailand while improving the rich biodiversity of the region. They help smallholders work towards and maintain an agroforestry model (as opposed to monoculture). Compatible plants and crops grown among the rubber trees in an agroforestry model provide ground cover – as well as other non-timber forest products such as pineapples and honey which supplement and provide stability to the smallholders' income from rubber production. The Agriac Group, which saw 3,200 acres under supervision and

495 members in 2021, has expanded to close to 8,000 acres and 3000 smallholder members by the winter of 2023.

Hunter Boots, the 160-year-old maker of the iconic Wellington rain boot, used 74 metric tons of FSC-certified rubber in 2022, jumping to 307 metric tons in 2023. The company has pledged that 100 percent of its rubber footwear will be certified by 2025. By 2024, it will also ensure that 100 percent of its paper packaging is traceable and comes from sustainable sources – in line with its Forest Materials Policy.

lululemon's broad sustainability program commits that 100 percent of its forest-based materials will be third-party audited or certified by 2023. As of 2018, 100 percent of its forest-based cellulosic fibers were sourced responsibly and assessed through CanopyStyle Audits. At present, lululemon is transitioning all of its yoga mats to natural rubber that is sustainably sourced and certified.

Clarks' crepe rubber is another good example of apparel and footwear brands incorporating sustainably produced rubber into their products – 70 percent of its crepe soles were FSC certified as of the end of 2021. Clarks, along with other well-known brands, is also a signatory of the forthcoming *FSC Natural Rubber Paper*, committing to responsible sourcing.

May 2021 saw tire manufacturer Pirelli become the first company in the world to produce a range of FSC-certified tires designed for the BMW X5 xDrive45e Plug-in Hybrid. Giovanni Tronchetti Provera, Pirelli's SVP of Sustainability and Future Mobility, said: "Before even reaching the road, sustainable mobility begins with raw materials. With the world's first FSC-certified tire, Pirelli demonstrates its commitment to pursuing increasingly challenging goals in terms of sustainability."

"As a premium manufacturer, we aspire to lead the way in sustainability and take responsibility," said Andreas Wendt, former member of the Board of Management of BMW AG, responsible for the Purchasing and Supplier Network. "We have been committed to improving cultivation of natural rubber and increasing transparency in the supplier network since 2015. The use of tires made of certified natural rubber is helping preserve biodiversity and forests to counteract climate change."

Moving forward, there is growing international pressure to require all Thai plantations to follow sustainable principles and be transparent in their management. In December, Nakorn Takwiraphat, governor of the Rubber Authority of Thailand (RAOT), said: "There is risk that international companies like Michelin and IKEA will not buy our rubber if plantations don't meet international standards within two years. ... RAOT aims to ensure at least 50 percent of Thai rubber plantations meet FSC standards to ensure the country can meet international demands," and warned that "if not, exporters will face the risk of products being rejected, and adding the benefit that "rubber farmers who meet these standards will be able to sell their products at prices up to 40 percent more than normal."

"Right now is an exciting time for certification in the rubber value chain due to the convergence of several drivers," says Sean Nyquist, Value Chain Development Manager of Natural Rubber at FSC. "These include urgency brought forth by the EUDR legislation, accessibility of certification to smallholder tappers through the regional standard for smallholders, pathways to correct past social and environmental harms through the Remedy Framework; and other tools to capture the true value of forests, such as ecosystem services verification, to incentivize responsible forest stewardship and improve smallholder livelihoods."

Cutting lianas helps trees store more carbon



Most tropical foresters recognize that liberating trees from their burdens of woody vines (lianas) is an effective way to increase their growth. A recently published as an open-access article in *Forest Ecology and Management* (doi.org/10.1016/j.foreco.2023.121038) builds on this traditional ecological knowledge (and a great deal of previous research) to point out that liana cutting is also a cost-effective way to increase timber yields and sequester carbon.

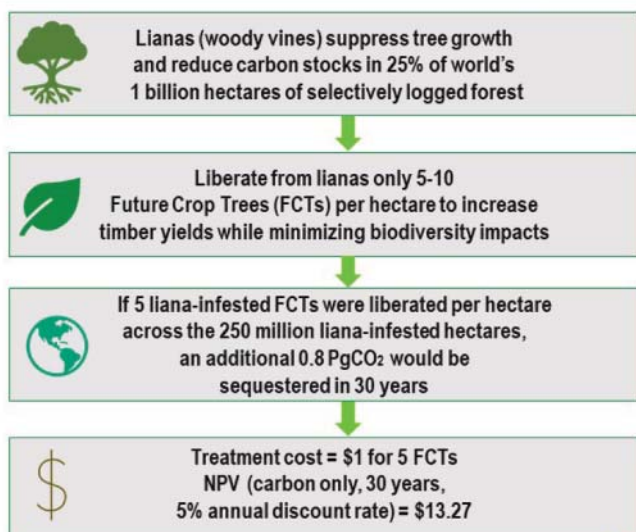
The authors estimate that of the total 1 billion hectares of selectively logged forest in the world, lianas impede tree growth in 250 million hectares. Numerous studies have shown that trees liberated from lianas nearly double their growth rates and that the liberation treatment is inexpensive to apply, requiring only a few minutes with a machete. The authors calculated that by liberating just five future crop trees (FCTs) – or trees destined for harvest – per hectare in these forests, 17 billion tons of carbon dioxide equivalents (CO_2e) would be removed from the atmosphere over a 30-year period at a cost of <\$1 per ton. Given current carbon market prices of \$10–20 per ton of CO_2e , this represents an attractive opportunity for countries to both meet their climate action goals, or Nationally Determined Contributions (NDCs), and to boost timber yields from selectively logged forests.

The authors issue an important caveat that lianas provide critical ecosystem services, act as inter-crown pathways for canopy animals that don't fly, and some are important food sources for wildlife. To minimize the forest biodiversity-tree growth tradeoff, the authors recommend freeing no more than ten trees per hectare of their liana burdens, leaving lianas in the remaining trees untouched. Any biodiversity impacts should also be considered in the wider context of conservation benefits; keeping managed forests economically viable helps prevent their conversion to non-forest land uses.

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Liana cutting in selectively logged forests increases both carbon sequestration and timber yields



**FOREST
ECOLOGY AND
MANAGEMENT**

Putz et al. 2023



Conclusion: Releasing future crop trees (FCTs) from lianas is a cost-effective natural climate solution ready for widespread implementation

Deforestation and forests lost or damaged due to human and environmental change are outpacing rates of forest regrowth

A pioneering global study has found deforestation and forests lost or damaged due to human and environmental change, such as fire and logging, are fast outstripping current rates of forest regrowth.

Tropical forests are vital ecosystems in the fight against both climate and ecological emergencies. The research, published today in *Nature* and led by the University of Bristol, highlights the carbon storage potential and the current limits of forest regrowth to addressing such crises.

The findings showed degraded forests recovering from human disturbances, and secondary forests regrowing in previously deforested areas, are annually removing at least 107 million tonnes of carbon from the atmosphere across the tropics. The team of international researchers have quantified the rates of aboveground carbon stock recovery using satellite data across the world's three largest tropical forests.

Although the results demonstrate the important carbon value of conserving recovering forests across the tropics, the total amount of carbon being taken up in aboveground forest growth was only enough to counterbalance around a quarter (26%) of the current carbon emissions from tropical deforestation and degradation.

Lead author Dr Viola Heinrich, who recently gained a PhD in physical geography at the University of Bristol School of Geographical Science, said: "Our study provides the first pan-tropical estimates of aboveground carbon absorption in tropical forests recovering from degradation and deforestation.

"While protecting ancient tropical forests remains the priority, we demonstrate the value in sustainably managing forest areas that can recover from human disturbances."

Environmental scientists at the University of Bristol worked with experts from Brazil's National Institute for Space Research (INPE), which included collaborations with scientists from across the UK, Europe, and USA.

The team used satellite datasets that can distinguish deforestation from other human-induced disturbances, such as logging and fire, to determine the types of forests regrowing. Combined with information on aboveground carbon from the European Space Agency, and environmental variables, the team modelled the spatial patterns of forest regrowth in the Amazon, Central Africa, and Borneo.

They found the type of human disturbances in Borneo resulted in the greatest carbon reductions in degraded forests, primarily due to the high intensity logging of economically valuable trees, compared to in the Amazon and Central Africa. Additionally, the climate and environment on Borneo also

results in carbon accumulating about 50% faster than in the other regions.

"The carbon recovery models we developed can inform scientists and policy makers on the carbon storage potential of secondary and degraded forests if they are protected and allowed to recover," said Viola, now a Research Associate at the University of Exeter.

The team also found that one third of forests degraded by logging or fire were later completely deforested, emphasising the vulnerability of the carbon sink in these recovering forests.

"Tropical forests provide many vital direct resources for millions of people and animals. At large scales we need to protect and restore tropical forests for their carbon and climate value. On the local scale, people need to be allowed to continue to use the forests sustainably," added Viola.

Co-author Dr Jo House, Reader in Environmental Science and Policy at the University of Bristol, who has authored many international assessments on climate change and forests, said: "Countries have repeatedly made pledges to reduce deforestation and forest degradation and restore deforested areas.

"This is the most cost-effective and immediately available way to remove carbon from the atmosphere, alongside many co-benefits such as biodiversity, flood control and protection of indigenous peoples' livelihoods. Yet targets are repeatedly missed due a lack of serious international co-ordinated support and political will. Our research demonstrates that time is running out."

At COP27, hosted by Egypt last November, Brazil, Indonesia, and Congo forged a South-South alliance to protect rainforests. January 2023 saw the inauguration of Brazil's new president Luiz Inácio Lula da Silva, who has pledged to undo the damage caused by preceding policies and revert to protecting and restoring the Amazon.

Co-author Dr Luiz Aragão, Head of Earth Observation and Geoinformatics Division at the National Institute for Space Research (INPE) in Brazil, said: "Focusing on the protection and restoration of degraded and secondary tropical forests is an efficient solution for building robust mechanisms for sustainable development of tropical countries. This aggregates monetary value for the local to global environmental services provided by these forests, in turn benefiting local populations economically and socially."

The team now plans to build on this research, improving the estimates of carbon losses and gains from different types and intensities of forest disturbance across the tropics.

sciencedaily.com

RECOFTC embraces e-learning

The COVID-19 pandemic halted most in-person training by RECOFTC, but new e-learning courses have reached many learners throughout the Asia-Pacific region and beyond.

The COVID-19 pandemic turned the world upside down in many ways. With travel disrupted and social distancing a

necessity, RECOFTC was able to reach learners through e-learning. RECOFTC launched the Community Forestry 101 course in October 2020. The free course on RECOFTC's Learning Gateway ran for a second time in June 2021.

Community Forestry 101 introduces community forestry as a pathway to sustainable development and inclusive climate

change solutions. It covers what community forestry is, what forms it takes, what makes it successful and what holds it back.

"I had a great time learning with this course," says Carolyn A. Esmenda, chief of the Conservation and Development Section in the Philippine Department of Environment and Natural Resources. "The readings are accessible and the concepts are easy to understand. The activities and assessments enhance and reinforce the ideas and learnings. I am grateful I took it, and I recommend it."

Esmenda was one of more than 2,000 people who enrolled in the course. More than half of them were women.

While more than 80 percent of the learners were based in the Asia-Pacific region, they represented a total of 87 countries from around the world.

Satisfied users

The e-course has contributed to progress towards achieving several of the Sustainable Development Goals. It is particularly relevant to Goal 4, which is focused on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. In this respect, the e-course fills a significant gap due to lack of courses on community forests through universities in the Asia-Pacific region. The Department of Environment and Natural Resources in the Philippines in 2021 required its personnel overseeing community forestry to take the course as mandatory learning material.

When asked to rate their experience with the course, 43 percent of the learners surveyed gave it a score of 4 out of 5, while 48 percent gave it a score of 5. In particular, they appreciated receiving personalized feedback on their work as they progressed through the course.

"It was satisfying to take this online course because I could reflect on my learning progress using a workbook and a guided assignment," says Hnin Phyu Sin, an MSc student from Myanmar studying environmental risk and human security at the United Nations University in Germany. "I look forward to more RECOFTC courses like this one."

Interactive approach to learning brings rewards

Qualitative assessments of learners' assignments require time and resources. But RECOFTC considers it important to approach e-learning this way rather than through more passive models that are less engaging for users.

"One of my most important and exciting tasks was to review learners' workbooks and offer them feedback," says RECOFTC's Marie Noel Ngoddo, who led the team that developed the course. "This provided me with an opportunity to have meaningful interactions with many learners. This one-on-one with participants is a unique opportunity for us to learn together."

Since launching the course, RECOFTC has continued to innovate, refining the course content based on its monitoring and evaluation and developing an e-learning app for smartphones and tablets.

Although Community Forestry 101 was RECOFTC's first e-course, it was not the only one for long. In December 2020, RECOFTC teamed up with the Food and Agriculture Organization of the United Nations (FAO) to launch an e-course on land and forest tenure. In addition, RECOFTC launched a third e-learning course in 2021, Policy Analysis and Forest Governance 101.

recoftc.org

FAO committee explores forestry, agriculture, climate change linkages

HIGHLIGHTS

- Issues addressed during the meeting include sustainable production of wood and non-wood forest products and their value chains, and the role of such products in combating climate change.
- Countries' differing national interests were prominent in the debate over how the meeting report should reflect the way the war in Ukraine was addressed, as well as some of the issues that more directly affect forests.
- Numerous countries reported increases in tree cover or initiatives being undertaken for this purpose.

Celebrating its 50th anniversary and convening in person for the first time since the beginning of the COVID-19 pandemic, the Committee on Forestry (COFO) of the Food and Agriculture Organization of the UN (FAO) discussed how FAO should proceed with work on linkages between agriculture, forestry, and climate change, and examined preparations for the 2025 edition of the Global Forest Resources Assessment (FRA).

The Committee also discussed the implications and follow-up of the findings of FAO's flagship report titled, "The State of the

World's Forests 2022" (SOFO 2022), and the XV World Forestry Congress, held in May 2022 in Seoul, Republic of Korea.

Other issues addressed during the meeting include sustainable production of wood and non-wood forest products and their value chains, and the role of such products in combating climate change, including the draft action plan for implementing FAO's newest Strategy on Climate Change. Delegates also heard updates on the implementation of the UN Decade on Ecosystem Restoration 2021-2030 and the UN Strategic Plan for Forests 2017-2030, as well as other efforts to support forest governance and sustainable forest management (SFM) and conservation.

According to the *Earth Negotiations Bulletin* (ENB) analysis of the meeting, the war in Ukraine "dominated discussions on several agenda items," due to its effects on land, agriculture, and global food and energy security, and because of the "differing positions between Ukraine and the Russian Federation, which is itself home to one-fifth of the world's forests."

Countries' differing national interests were prominent in the debate over how the meeting report should reflect the way the war was addressed, as well as some of the issues that more directly affect forests. For example, the ENB writes, some of the world's biggest exporters of agricultural products objected to the

report of the meeting including the SOFO 2022 finding that “agricultural conversion is responsible for 90% of all deforestation.” Others objected to calling for “halting deforestation” – the exact wording of one of the targets under SDG 15 (life on land).

At the same time, numerous countries reported increases in tree cover or initiatives being undertaken for this purpose, including Saudi Arabia’s programme to plant one billion trees across the country and the ongoing multi-country Great Green Wall initiative in Africa.

COFO is the highest of the FAO Forestry Statutory Bodies. Its biennial sessions bring together heads of forest services and other senior government officials to identify emerging policy and technical issues, seek solutions, and advise FAO and others on appropriate action.

The 26th session of COFO convened in hybrid format in Rome, Italy, from 3-7 October 2022. The 8th World Forest Week convened in parallel, where a series of special events were held under the overarching theme, ‘Growing a Better Planet.’

Publications

Cash, Cattle and the Gran Chaco: How financiers turned a blind eye to Paraguay’s deforestation crisis

Several major European and US financiers, including HSBC, BlackRock, Santander and the Netherlands’s biggest pension fund have helped bankroll what has been named the “world’s worst deforestation crisis” in Paraguay, holding or increasing shares in – or providing financial services to – meatpacking giants accused of deforestation and land-grabbing in South America’s second largest forest, the Gran Chaco.

In 2020, the meat-packing giants Minerva and Frigorifico Concepción were accused of buying cattle raised by two ranchers responsible for illegal land grabbing and forest clearance, all within the ancestral lands of Indigenous peoples in the Gran Chaco. This illegal deforestation was found to have been occurring since 2018. New evidence also suggests Minerva was sourcing from at least one of the unethical ranchers throughout 2021 – though Minerva denies this.

Despite the companies’ links to known deforesters in the Chaco, a new Global Witness investigation has found that many leading financiers continue to bankroll Minerva, with some



backing it financially by holding or even increasing their shares in the company. Others provided Minerva or Frigorifico Concepción with financial services such as underwriting bond issuances worth millions of dollars.

Key findings

The new investigation reveals that between December 2020 and December 2022:

- Netherlands: APG, the Netherlands’s largest pension manager, almost doubled its investment in Minerva, increasing its shareholdings in the company from \$7million to \$13.7million
- France: BNP Paribas substantially increased its investments, from \$740,000 to \$1million
- Spain: the largest growth in shareholdings came from Spanish bank Santander, whose investment shot up a staggering 1,000%, from \$70,000 to \$770,000

Download the report at globalwitness.org

Mapping the world’s forests over time



European Space Agency

YouTube - www.youtube.com/watch?v=VLljUxf7fHk

The world’s forests play an important role in regulating the climate, removing the heat trapping gas, carbon dioxide, from the atmosphere as biomass in trunks, branches and roots grow. Richard Lucas of the @aberystwythuni is a leading climate scientist working with ESA. Richard discusses how satellite observations and ESA’s Climate Change Initiative are key to assessing global forest biomass and to inform both climate models and policy.

Around the World

Costa Rica: Strategic habitat restoration can generate a win-win for forests and farmers

Carefully planned restoration of agricultural coffee landscapes can increase both farmers' profit and forest cover over a 40-year period, according to a study published May 23rd in the open access journal PLOS Biology by Dr. Sofía López-Cubillos at the University of Queensland in Australia, and colleagues.

Restoring patches of natural vegetation in agricultural land presents a trade-off for farmers: while the lost cropland can reduce profitability, increases in ecosystem services like pollination can improve crop yield. To investigate how conservation priorities can be balanced with economic needs, researchers developed a novel planning framework to model the effects of forest restoration on agricultural profits, accounting for the beneficial effect of pollinators. They considered the best spatial arrangement for restoring forests to achieve one of two goals – restoring forest while also expanding agriculture, or restoring forest only – and applied this to a case study of coffee farming in Costa Rica.

They divided the study area into a grid of over 60,000 squares and estimated the current coffee yield, bee abundance, and profitability for each square. Calculating coffee profits five years and 40 years into the future under a variety of restoration

scenarios, they found that strategically allocating land to agriculture and forest could increase economic returns, compared to a baseline in which the current landscape was maintained. Over a 5-year period, prioritizing restoration was more profitable than strategies that simultaneously expanded agricultural land. After 40 years, strategically balancing conservation and agricultural profits could increase forest cover by 20% while doubling profits for landholders, even when accounting for agricultural land replaced by forest.

The study is the first to consider how long-term changes in pollinator abundance can influence the costs and benefits of restoring forest across agricultural landscapes. The results show that with careful planning, pursuing conservation goals can improve economic outcomes for farmers, rather than being a burden, the authors say.

López-Cubillos adds, “Bee abundance and the pollination services they provide can increase through restoration. This study explored the trade-offs between coffee profitability and forest restoration, finding that within five years profits increased by ~90% after restoration and forest restored area by 20%.”

phys.org

Global: ‘Crucial’ Cop15 deal includes target to protect 30% of nature on Earth by 2030

Environmental groups and ministers have praised the ambition of the agreement, which also places emphasis on Indigenous rights

Ministers and environmental groups have praised the ambition of the deal reached at Cop15, which includes a target to protect 30% of the planet for nature by the end of the decade and places emphasis on Indigenous rights.

There was widespread support for the final text put forward after two weeks of UN biodiversity negotiations to agree this decade's targets for protecting nature, which included protecting 30% of the planet for nature by the end of the decade, reforming \$500bn (£410bn) of environmentally damaging subsidies, and taking urgent action on extinctions.

“The global ambition agreed at Cop15 to halt and reverse biodiversity loss by 2030 is vital if we are to bring our planet back from the brink,” said Mike Barrett, the executive director of science and conservation at WWF-UK. “The tripling of international finance for developing countries, conservation targets to halt species extinction, and the rights of Indigenous peoples being placed front and centre are crucial cornerstones of the deal.”

Others praised the emphasis on the rights and territories of Indigenous people who, despite their outsized contribution

to protecting nature, often face threats of violence and rights violations.

“Now they are recognising that Indigenous people can also make contributions to biodiversity conservation,” said Viviana Figueroa, a representative of the International Indigenous Forum on Biodiversity (IIFB). “For us, it's like a change of paradigm. They are recognising this important role that was invisible.”

Christophe Béchu, France's minister for ecological transition, who headed its delegation, called it a “historic deal”. He said: “It's not a small deal. It's a deal with very precise and quantified objectives on pesticides, on reduction of loss of species, on eliminating bad subsidies.”

“Many of us wanted more things in the text and more ambition but we got an ambitious package,” said Canada's minister of environment and climate change, Steven Guilbeault. “We have 30x30. Six months ago, who would have thought we could get 30x30 in Montreal? We have an agreement to halt and reverse biodiversity loss, to work on restoration, to reduce the use of pesticides. This is tremendous progress.”

But despite the praise, the UN conference ended in high drama after a number of countries complained the agreement had been pushed through undemocratically by China. Some felt that this could undermine the agreement, which is not legally

binding and relies on goodwill and trust between countries – including many in Africa, home to some of the planet's richest remaining ecosystems.

"Legally, it's done. Morally, what can I say? It's over," said Lee White, Gabon's environment minister, as he left the Palais des congrès at the end of talks.

"I've spent three years of my life on this process and I'm as pissed off as anybody. It shouldn't be like that. China has pissed it all away," said one negotiator, who said he had concerns about whether countries who objected would agree to work and implement the CBD. This matters because the Congo basin – which covers roughly 60% of the DRC – is one of the key ecosystems that the 30x30 agreement will need to protect.

At the plenary, which lasted for more than seven hours with an agreement reached at 3.30am local time, Huang Runqiu, China's environment minister, appeared to disregard objections from the Democratic Republic of the Congo delegation, lowering the gavel and declaring the deal passed only minutes after they said they were not able to support it.

Comments from DRC about the responsibility of developed nations to fund conservation in developing countries were not considered a "formal objection" because he did not use those specific words, despite saying he did not support the agreement, the secretariat said.

"It was on the margins," said Pierre du Plessis, the negotiator for Namibia. "But he didn't officially object to the adoption."

After the official agreement, the DRC negotiator spoke again, saying he had made a "formal objection". This was followed by negotiators from Cameroon and Uganda expressing incredulity that the agreement had been put through. A representative from Cameroon said through an interpreter: "What we saw was a force of hand."

Speaking to journalists after the agreement, Guilbeault said: "I think the presidency acted within the guidelines, rules and procedures of the United Nations. Some of my colleagues have started reaching out to DRC in hopes that we can find ways that we can work together moving forward." He said claims the agreement was fraudulent were "clearly not accurate".

The EU commissioner, Virginijus Sinkevičius, said: "This is a question for the presidency and secretariat – we saw that they were deciding something, they were discussing something and then suddenly the decision was taken."

He added: "The main message is that we can reach Paris because we have a Montreal moment."

theguardian.com

USA: A fifth of California's Sierra Nevada conifer forests are stranded in habitats that have grown too warm for them

Researchers have created maps showing where warmer weather has left trees in conditions that don't suit them, making them more prone to being replaced by other species. The findings could help inform long-term wildfire and ecosystem management in these "zombie forests."

Like an old man suddenly aware the world has moved on without him, the conifer tree native to lower elevations of California's Sierra Nevada mountain range finds itself in an unrecognizable climate. A new Stanford-led study reveals that about a fifth of all Sierra Nevada conifer forests – emblems of Western wilderness – are a "mismatch" for their regions' warming weather. The paper, published Feb. 28 in *PNAS Nexus*, highlights how such "zombie forests" are temporarily cheating death, likely to be replaced with tree species better adapted to the climate after one of California's increasingly frequent catastrophic wildfires.

"Forest and fire managers need to know where their limited resources can have the most impact," said study lead author Avery Hill, a graduate student in biology at Stanford's School of Humanities & Sciences at the time of the research. "This study provides a strong foundation for understanding where forest transitions are likely to occur, and how that will affect future ecosystem processes like wildfire regimes." Hill led a related study this past November showing how wildfires have accelerated the shifting of Western trees' ranges.

Sierra Nevada conifers, such as ponderosa pine, sugar pine, and Douglas fir are among Earth's tallest and most massive

living things. They have stood watch as temperatures around them warmed by an average of a little over 1 degree Celsius or 2 degrees Fahrenheit since the 1930s. Meanwhile, recent years have seen a giant wave of new human residents drawn to the lower elevations of the Sierra Nevada by spectacular scenery, relaxed lifestyles, and relative affordability. The combination of hotter weather, more construction, and a history of fire suppression have fueled increasingly destructive wildfires, making the names of communities like Paradise and Caldor synonymous with Mother Nature's fury.

Hill and his co-authors started by combing through vegetation data going back 90 years, when the vast majority of human-caused warming had yet to occur. Fed this information, a computer model designed by the researchers showed that the mean elevation of conifers has shifted 34 meters or almost 112 feet upslope since the 1930s, while the temperatures most suitable for conifers have outclimbed the trees, shifting 182 meters or nearly 600 feet upslope on average. In other words, the speed of change has outpaced the ability of many conifers to adapt or shift their range, making them highly vulnerable to replacement, especially after stand-clearing wildfires.

The study estimates that about 20% of all Sierra Nevada conifers are mismatched with the climate around them. Most of those mismatched trees are found below an elevation of 2,356 meters or 7,730 feet. The prognosis: even if global heat-trapping pollution decreases to the low end of scientific projections, the number of Sierra Nevada conifers no longer suited to the climate will double within the next 77 years.

“Given the large number of people who live in these ecosystems and the wide range of ecosystem services they confer, we should be looking seriously at options for protecting and enhancing the features that are most important,” said study co-author Chris Field, the Perry L. McCarty Director of the Stanford Woods Institute for the Environment within the Stanford Doerr School of Sustainability.

The study’s first-of-its-kind maps paint a picture of rapidly changing landscapes that will require more adaptive wildfire management that eschews suppression and resistance to change for the opportunity to direct forest transitions for the benefit of ecosystems and nearby communities. Similarly, conservation

and post-fire reforestation efforts will need to consider how to ensure forests are in equilibrium with future conditions, according to the researchers. Should a burned forest be replanted with species new to the area? Should habitats that are predicted to go out of equilibrium with an area’s climate be burned proactively to reduce the risk of catastrophic blazes and corresponding vegetation conversion?

“Our maps force some critical – and difficult – conversations about how to manage impending ecological transitions,” said Hill. “These conversations can lead to better outcomes for ecosystems and people.”

Global: Deforestation is reducing rainfall all over the tropics

Satellite data shows rainfall in tropical regions across the globe has declined in deforested areas in line with what climate models have been predicting

Rainfall is decreasing in tropical areas around the world where forests are being cut down, an analysis of satellite data has shown, confirming the predictions of climate models.

This decline in rainfall will lead to falling yields in the farmland now found in regions where forest has been cleared and could lead to a vicious cycle, says Callum Smith at the University of Leeds in the UK. “As agricultural yields decline, more forests will be chopped down.”

Lower rainfall will also increase the risk of fires and reduce the odds of the remaining forest surviving, he says.

Vast amounts of water evaporate from the leaves of trees in tropical forests, and this water may fall as rain in nearby areas. When forests are cut down, less water is returned to the atmosphere above forests.

Climate models suggest this effect will reduce rainfall, but until now, studies of observed changes in rainfall have focused on specific regions, rather than across the tropics generally.

What’s more, a few studies have found increases in rainfall in some deforested areas. That is thought to occur because deforested patches are hotter than the surrounding forest, leading to rising air that triggers local rainfall.

To get a better overall picture, Smith and his colleagues started with a satellite dataset showing how forest cover in the Amazon, the Congo and South-East Asia changed from 2003 to 2017. They then compared this with various satellite measurements of rainfall in these regions.

“This is the first time that anyone has done a pan-tropical assessment with observational data,” says Smith.

The researchers also analysed the data at different scales, ranging from 25 to 40,000 square kilometres. At smaller scales, they found no change in average rainfall – there were increases in some places but just as many decreases.

But at larger scales they found a decrease. At the 40,000-square-kilometre scale, there was a 0.25 millimetre decline in rainfall per month for every percentage point of forest lost. This is within the high end of the range suggested by climate models.

If rainfall continues to decrease at the same rate as forests are felled, total deforestation would lead to a 10 or 20 per cent decline in rainfall in affected regions. But it is possible the decline could accelerate when a tipping point is reached.

“There could be a catastrophic fall-off in precipitation at a certain level,” says Smith.

“The role that rainforests play in generating rainfall has been speculated about for quite a while but has been hard to pin down and quantify with direct observational evidence,” says Yadvinder Malhi at the University of Oxford.

This work shows that the observed rainfall decline is roughly what model simulations suggest, he says.

But the study shows only correlation, not causation, Malhi notes. It is possible that other factors such as sea surface temperature changes are playing a role too, he says.

newscientist.com

USA: Oregon State University researcher will receive top global forestry award from Swedish king

Darius Adams, professor emeritus in the Oregon State University College of Forestry, is one of three researchers sharing this year’s international **Marcus Wallenberg Prize** for developing a pair of groundbreaking forest economic models.

The annual prize, one of the highest honors in the field of forestry, was announced last week in Sweden and is named

for the late Marcus Wallenberg Jr., a banker, industrialist and member of Sweden’s long-influential Wallenberg family.

Adams is the second Wallenberg awardee from the College of Forestry in the last three years. In 2020 another OSU professor emeritus, Richard Waring, was honored for developing a revolutionary computer model to predict forest growth in a changing climate.

Adams and co-honorees Joseph Buongiorno of the University of Wisconsin and Richard Haynes of the U.S. Forest Service's Pacific Northwest Research Station will share 2.5 million kronor, about \$242,700, when they are presented with the prize in October in Stockholm by Swedish King Carl Gustav XVI.

"Darius Adams and his colleagues are deeply deserving of this incredible honor for their visionary work that the forest industry continues to build on," said Tom DeLuca, the Cheryl Ramberg-Ford and Allyn C. Ford dean of the OSU College of Forestry. "Their collective accomplishments are a reminder to us all that the transformational changes needed to solve today's pressing global resource and environmental concerns are best achieved collaboratively."

Adams joined the OSU College of Forestry faculty in 1974 and remained active in forest economics teaching and research until 2009. The models created by Adams and his colleagues combine biological, statistical, mathematical and technological knowledge with neoclassical economic theory for the benefit of forestry professionals and policy makers in both the public and private sectors.

"We never shied away from adding more detail, which is quite unlike the attitude of many other economic modelers, since we felt it made the output more useful," Adams said.

The models, known as TAMM and PAPYRUS, can be applied to analyze the impact of multiple factors including trade regulations, climate mitigation measures, carbon pricing, forest protection measures, energy supply subsidies, new biorefinery products and climate change.

"We didn't have to approximate the effects of a policy change – the elements critical to policy action were built into the model and could be directly manipulated in a projection

of the future," Adams said. "For example, separately modeling industrial and nonindustrial forest inventories and harvest decisions allowed us to look at the different effects of, say, subsidies for planting or higher desired rates of return on capital in industrial ownerships."

TAMM and PAPYRUS became the foundation of forest sector modeling based on neoclassical economic theory and are the basis for numerous global, national and regional models, including the widely used Global Forest Products Model.

"Global forests and the industry continue to face new demands and challenges under a changing climate and new governance conditions," said Johanna Buchert, who chaired the Marcus Wallenberg Prize selection committee. "The further development of forest and forest sector modeling and continuing on the legacy of this year's laureates will become increasingly important to guide policy making at different levels and to sustain an intelligent and sustainable development of forestry and forest industries."

Established in 1980, the Marcus Wallenberg Prize goes to an individual researcher or a small group of researchers for "a groundbreaking discovery or development in an area of importance to the forest industry," according to the Marcus Wallenberg Foundation.

The prize's purpose is "recognizing, encouraging, and stimulating pathbreaking scientific achievements, which contribute significantly to broadening knowledge and to technical development within the fields of importance to forestry and forest industries."

today.oregonstate.edu

Indonesia: EPA and Indonesian Ministry of Environment and Forestry Sign Memorandum of Understanding to enhance environmental cooperation

In early April, the U.S. Environmental Protection Agency (EPA) and the Indonesian Ministry of Environment and Forestry (MOEF) signed a memorandum of understanding (MOU) to strengthen bilateral cooperation on environmental protection and climate action.

The MOU establishes a framework for collaboration on a range of environmental issues, such as climate change, air quality management, water quality management, waste management, environmental education, and environmental law enforcement. The MOU also aims to promote technical exchanges and information sharing between the two countries.

"EPA greatly values our productive and sustained history of environmental cooperation with Indonesia, particularly with the Ministry of Environment and Forestry," said EPA Administrator Michael S. Regan. "We're proud to partner with the ministry to advance our shared goals of protecting human health and the environment, and to address the global environmental challenges we face today and in the future."

"Indonesia and the United States have a long history of cooperation on environmental issues, and this MOU will further

enhance our collaboration and mutual learning," said MOEF Minister Siti Nurbaya. "We look forward to working with EPA on implementing concrete actions that will benefit both our countries and the planet."

"This MOU will expand our collaboration on a range of environmental pollution issues to help both our countries achieve our objectives of improving air quality, waste management, and water sanitation, and reducing plastic pollution," said U.S. Ambassador to Indonesia Sung Kim.

Many Indonesian environmental regulations have been inspired by US EPA regulations, which have served as an academic reference for Indonesian environmental regulations since the early 2000s.

The MOU builds on the existing partnership between EPA and MOEF under the U.S.-Indonesia Strategic Partnership, which was established in 2015 to elevate bilateral relations to a higher level. The MOU also supports the implementation of the Paris Agreement on climate change, which both countries have ratified.

epa.gov

Malaysia: Sahabat Alam Malaysia wants one-stop govt website for forestry, conservation data

The Sahabat Alam Malaysia environmental group has called on the government to develop an official, user-friendly website to publish data on forests and conservation areas.

Sahabat Alam Malaysia senior research and media officer Shamila Ariffin said this would improve transparency and the health and quality of forests and conservation areas. She said the Natural Resources, Environment and Climate Change Ministry, helmed by minister Nik Nazmi Nik Ahmad, should re-release the master list of protected areas in Malaysia that was launched by the then water, land and natural resources ministry in 2019.

"This publication, a result of more than two decades of labour among various government agencies and non-governmental organisations, was supposed to provide the most comprehensive and authoritative official data on our conservation areas, both terrestrial and marine.

"It was temporarily released in 2019, then inexplicably withdrawn. The minister needs to target a new date for this and a commitment that the publication will be updated annually," she told the New Straits Times.

Shamila said there was a need to develop policies and laws in consultation with indigenous communities, civil society organisations and regions to fully protect indigenous customary territories from deforestation and destructive activities and legally recognise the role of community-based forestry management. "The failure to halt deforestation and install policies and laws to ensure that the protection of the indigenous customary land rights and forests is well-integrated are indications that in the last four decades, we have failed to manage our forests sustainably.

"Until today, we still do not have effective policies and laws in place to adequately integrate the rights of indigenous and local communities in our forestry management. For decades, a large bulk of logging, monoculture plantation and other destructive activities causing deforestation have been taking place in

our indigenous customary territories. But without community, there can never be sustainability."

She said the country's timber harvesting rates between the 1980s and 1990s were too high. "Many forestry experts had warned us of the impending depletion of our natural timber resources since the 1980s. Subsequently, beginning in the 1990s, monoculture plantation licences, mostly for the cultivation of timber and oil palm trees, began to be issued in these logged-over forests."

Shamila said there was a need to expedite the process to access international climate funds that would provide resources for states to protect their forests.

Yesterday, environmental group RimbaWatch said Malaysia had earmarked 2.3 million hectares of forest for deforestation, an area larger than Perak, Penang and Melaka combined and 100 times the size of Kuala Lumpur.

The group said this could see the nation's forest cover fall to less than 50 per cent. It said Malaysia's forest cover could decrease to 15,636,737ha, or 47 per cent of the total land area. This number is below the government's promise of maintaining 50 per cent forest cover.

Environmentalist Anthony Tan Kee Huat said the answer to stopping deforestation was to stop corruption. Tan, a member of the All-Party Parliamentary Group Malaysia on the Sustainable Development Goals and Petaling Jaya Green City Task Force, said laws related to forestry must be strictly enforced, without fear or favour.

"The ministry must ensure real participation through open engagement with all stakeholders at the government level, be it federal, state, district or local authorities, as well as the private sector, researchers, civil society organisations and citizens, especially the Orang Asli.

"Find out what each group can bring to the table and not just an eyewash of selected participants to fulfil requirements." He said forestry personnel must be increased by including more Orang Asli as forestry officers to monitor activities in forests.

nst.com.my

China to expand national reserve forests by 2.4 million hectares

China will expand the area of national reserve forests by more than 36 million mu (2.4 million hectares) in the 14th Five-Year Plan period (2021–2025), said a forestry official Friday.

The country also plans to increase its forest stock volume by over 70 million cubic meters in these five years, Zhang Liming, an official with the National Forestry and Grassland Administration, told a press conference.

China has planted more than 92 million mu of reserve forests since the country started a project to build such forests in 2012 to meet the domestic timber demand, according to Zhang.

As the world's largest timber importer and second-largest timber consumer, China imports over one-third of the logs traded worldwide.

Over the past decade, the forest stock volume in project areas increased by 270 million cubic meters, and the national reserve forests produced about 150 million cubic meters of timber, Zhang revealed.

The forest reserve project has also created more than 3.6 million jobs, made over 150 billion yuan (about 22.3 billion U.S. dollars) of revenue from timber production, and facilitated the establishment of over 2,700 processing enterprises.

Zhang said China would next push forward the high-quality development of national reserve forests via means such as innovating investment and financing channels, as well as creating new models of property rights and business operations.

china.org.cn

“A historic moment in the struggle to stop deforestation”: EU agrees anti-deforestation law, putting bloc on the pathway to regulating financial sector

New law stops short of stronger protections for Indigenous rights

The EU today sealed an agreement on its landmark anti-deforestation law, which in a world-first puts the bloc on a pathway to making sure banks and investors do not invest in forest destruction.

The agreement commits the European Commission to publishing a proposal that would require the financial sector to conduct due diligence checks to stop investments that cause deforestation within two years after the law enters into force.

Last year, Global Witness showed how EU-based financial institutions struck €30.6 billion worth of deals with 20 agribusiness companies accused of deforestation between 2016–2020.

Giulia Bondi, senior EU forests campaigner at Global Witness, said *“This could be a historic moment in the fight against deforestation, as for the first time a major economy has put itself on a path towards making sure it stops financing the destruction of the world’s forests. However, more could have been done to protect indigenous communities.”*

“Governments around the world should use this as a blueprint for a wave of new laws to help save our remaining forests, which are critical in the fight against climate breakdown.”

The European Parliament, Commission and Council also agreed to prevent the import and sale of a comprehensive list of products linked to deforestation and forest degradation, including coffee, timber, palm oil, cattle, soy and cocoa and their derived products.

Negotiators agreed to add rubber, charcoal and printed products like books to this list. Other wooded land such as the Brazilian Cerrado, which represent almost two thirds of the EU’s soy-related deforestation, will be included within one year after the entry into force.

A disappointing outcome of the negotiations was the failure to agree meaningful new protections for Indigenous Peoples. Moves to require companies to respect international human rights law did not make it into the agreement.

The final text of the deforestation-free products regulation will be rubber-stamped by the European Parliament and Council in 2023, and then will start to be applied in all EU Member States within 18 months thereafter.

globalwitness.org

UK: Shortage of foresters prompts government to offer free courses

Ministers hope training in range of forestry skills will help to meet tree-planting and other climate goals

A shortage of foresters has prompted the government to launch free courses as it rushes to meet targets for tree planting.

There will be training in chainsaw maintenance, coppicing, woodland management, hedge laying and the sale and marketing of timber.

The Institute of Chartered Foresters said in November 2021 that the industry faced a shortfall of 10,000 trained workers. Without those positions being filled, the government will not be able to meet its climate goals of increasing woodland cover.

The government has promised to increase England’s woodland cover from 14.5% to 16.5% by 2050, and tree-planting across the UK to 30,000 hectares a year by the end of parliament. The courses will cost £700,000, allocated from the £750m Nature for Climate Fund. The government hopes the courses will prompt people to consider a career in forestry, so the sector can grow and woodland goals can be met. Ministers said it could also create new green jobs and boost the economy.

The forestry minister, Trudy Harrison, said: “We need to continue the legacy of our skilled forestry workforce to increase tree-planting across the country. More woodland is vital for

nature’s recovery and also essential to increase our security of UK grown timber, and deliver on our net-zero commitments.

“We have many fantastic foresters already, but there aren’t enough to grow and manage our woodlands at the planned scale over the coming decades.

“Our free practical forestry training courses will create green jobs, bring more people into the forestry sector and help existing workers build on and diversify existing forestry skills to meet this demand.”

The government is offering 100% funding for eligible courses and expects grants to range between £150 and £3,000.

The Forestry Commission chief executive, Richard Stanford, said: “The forestry training fund is a really valuable resource, accessible to anyone moving into the forestry sector. The fund will help people build and diversify their skills in forestry by offering training in essential skills from woodland management to planning and planting, which are important to creating resilient forests and woodlands.

“I encourage people from all backgrounds and abilities interested to apply, whether that’s a farmer looking to upskill or an individual looking for a rewarding career in forestry.”

theguardian.com

Nigeria: Banditry – Gov Uzodinma advocates use of digital technology to quell insecurity in forests

Imo State Governor, Senator Hope Uzodinma has advocated the use of digital technology for the management of forests in Nigeria, saying it would make the fight against the use of forests for criminal activities easier.

Uzodinma stated this on Thursday at the inauguration of the Imo State Command of the Nigerian Hunters and Forestry Security Service (NHFSS) which took place at the Youth Centre, Owerri.

Represented by the state Commissioner for Digital Economy, Dr. Chimezie Amadi, Uzodinma said the easiest way to make the job of the forestry security service easier and more effective was through what he called Digital Forest, whereby modern technology is deployed.

According to him, it would also engender millions of jobs for the youths joining the Service.

He, therefore, pledged to partner the leadership of the NHFSS in the area of training and other aspects for the Service officers and men.

The Commander General of the NHFSS, Ambassador Dr. Osetimehim Joshua, while speaking after inaugurating the Imo State Command, commended President Muhammadu Buhari for his efforts in the fight against terrorism, banditry, kidnapping and other forms of criminality in the country.

He said the NHFSS was prepared and ready to contribute to the fight against crimes, especially illegal activities that are carried out from the forests.

He charged officers and men of the Imo State Command to be up and doing to ensure that the use of forests and farms by gunmen and others for heinous crimes, is brought to an end.

He warned against internal bickering in the Imo State command and affirmed that Dr. Fabian Iwuoha is the authentic NHFSS Commander of the state.

The Commander General urged the Governor to call on President Buhari to sign the NHFSS Bill into law, as it would help in equipping the Service with the necessary legal and operational tools for effective service delivery.

"We are aware of the security challenges facing Imo State and the efforts of the Governor in confronting them with the view of making the state safe for living and for business.

"Let me assure His Excellency that the Hunters and Forestry Security Service would play necessary roles to compliment the Police and other Security agencies in combating insecurity and other crimes in Imo State, especially when the Bill is signed by Mr. President," he stated.

He commended some state governors for adopting NHFSS into their states security system, training of their personnel as well as donation of operational vehicles to enhance their jobs and solicited the same support from Imo State Governor.

Chief Metchie said NHFSS are also concerned about the crucial role of its Service in the protection of the entire ecosystem, climate and wildlife.

"This is because the abuse of nature, especially the shrinking of forests through illegal activities like logging has impacted negatively on the ecosystem, badly affected global climate condition which in turn is the major cause of depletion of ozone layers with resultant global warming, flooding, desertification, hurricanes and tsunamis, among others.

"I therefore believe that Hunters and Forest Security Service, working with the Nigeria Police, NSCDC and other security agencies, would play an eminent role in protecting the forests from abuse as well as give morale to farmers to go back to their farms and produce food for our teeming population," he added.

dailypost.ng

Global: Why the time for trees, forests and agroforestry is now

When I joined the Center for International Forestry Research (CIFOR) in 1999, the organization was just six years old, with an interdisciplinary staff of 60 scientists and a mission to develop solutions to forest-related problems integrating both social and environmental concerns. Indonesia, CIFOR's host country, became the world's third-largest democracy that year and has continued to demonstrate leadership for forest landscapes throughout three decades of partnership.

Back then, international opinion was beginning to shift from a view of forests as mere 'timber factories' to one that recognizes their true value and potential to help meet multiple global goals. CIFOR always rejected the one-size-fits-all view of forestry. The principles that set it apart during its early days – that effective forest solutions must consider people's needs (including those of women and marginalized groups), that policy must be informed not only by science but by input from stakeholders

at multiple levels, and that strategies must take a holistic landscape approach informed by the local context – are now becoming mainstream.

Today, forests are widely recognized as complex ecosystems at the heart of watersheds, local livelihoods, food and nutrition security, biodiversity, and climate balance. Wetlands and mangroves – once considered wastelands that could comfortably be cleared for shrimp farms – are now understood as heavyweights of carbon storage, thanks in part to ground-breaking research by CIFOR. Trees can create oases of moisture and biodiversity in drylands and provide wildlife corridors through farmland. And the era of 'fortress conservation' is fading as more research demonstrates the critical contributions of Indigenous Peoples to biodiversity conservation, carbon sequestration, and landscape restoration.

CIFOR's forest research has long seen beyond trees. Our global comparative research revealed the critical role forests

play in local livelihoods, directly influencing how the World Bank conducts its Living Standard Measurement Study surveys. More recent research is revealing the critical importance of forests and wild foods in nutrition, including the sustainable use of wildlife. Our scientific evidence, analysis, and technical expertise have supported the development of national and subnational policies on forest management, the green economy, climate action, wetlands, and value chains, among other things. And from its humble roots in the first Forest Day at the 2007 UN climate conference in Bali, the Global Landscapes Forum (GLF) has evolved into the leading global movement on sustainable landscapes, connecting over 1.7 billion people so far, from youth leaders to large multilateral donors.

World Agroforestry (ICRAF) shares CIFOR's holistic approach in its approach to agricultural landscapes. For over 40 years, ICRAF has aimed to find the balance between agriculture and environment, adopting the term 'agroforestry' to raise global recognition of the key role trees play on farms and emphasizing the need to base solutions on agroecological approaches that consider options by context.

When we decided in 2018 to merge the two organizations, some wondered why we didn't join forces sooner – especially given that CIFOR began its life in ICRAF's offices in Bogor, Indonesia. After a three-year merger process, our new organization CIFOR-ICRAF – fully united by the end of 2022 – brings a combined 75 years of expertise to its partnership network across 60 countries, with over 730 dedicated staff shaping global discussions through cutting-edge research findings and action on the ground. As part of the merger, we also launched Resilient Landscapes, an innovative venture that serves as an impact-driven bridge between science and business, finance, governments, and civil society. To date, we have completed over 2,200 projects worth more than USD 2 billion across 92 countries, and published over 25,000 research products – including through

our suite of websites, news outlets, social media channels, and events.

This vast body of work has collectively highlighted the potential of forests, trees, and agroforestry to address global challenges like climate change and biodiversity loss, whilst shoring up food security and more sustainable livelihoods for many of the world's most marginalized people. Working collaboratively with ministries, provincial and local governments, universities, communities, non-governmental organizations, women's and Indigenous Peoples' groups, and private companies has helped us to develop and promote ground-tested, locally-appropriate, and long-term solutions.

Colleagues have come and gone, but many have remained part of our core scientific team or stayed connected as associates, bringing their ever-diverse expertise to CIFOR-ICRAF's global perspective. Several of our top scientists began at CIFOR as postdocs doing research in the Amazon, the Congo Basin, or remote parts of the Indonesian archipelago, and the local knowledge and insights they gained on the ground continue to inform CIFOR-ICRAF's work supporting national efforts to meet global goals.

Now, we are beginning an exciting new chapter. Under a fresh leadership structure, incoming Chief Executive Officer Éliane Ubalijoro will lead CIFOR-ICRAF into an era of growth, as I assume a new role as Chief Operating Officer. Together, we are excited to accelerate our search for solutions – both those that have already been developed and tested by CIFOR-ICRAF and other research institutions, and those that will be co-created by the postdocs and young researchers to come, alongside local communities and our partners on the ground.

Robert Nasi
forestsnews.cifor.org

DRC: a study is launched to determine the country's forestry heritage

The Congolese DR Ministry of Environment and Sustainable Development has launched a study on the national forestry capital. This study, which will last one year, aims to determine the ecological, economic and social potential of the forest massifs of the Democratic Republic of Congo (DRC).

The government of the Democratic Republic of Congo (DRC) wants to have detailed knowledge of its forest heritage. This is the meaning of the national workshop to launch the study on the forest capital of the DRC, organized on March 14, 2023 in Kinshasa by the General Secretariat for the Environment and Sustainable Development (SG-EDD) and the General Secretariat for Land Management (SG-AT), in collaboration with the United Nations Development Program (UNDP) and the support of the National REDD+ Fund (FONAREDD).

"The DRC plays an important role in the fight against climate change. It is the solution for the climate crisis. This study will allow us to determine the ecological, economic and social

conservation potential of the massifs for the whole of the DRC; to produce cartographic information that will be compiled in a commented atlas and to formulate concrete proposals for the different types of forests in the country," explains Joseph Ezpua, UNDP Team Leader for Inclusive Growth and Sustainable Development in the DRC.

Technically led by the Ministry of Environment and Sustainable Development, through its General Secretariat, this study will be conducted for one year. It is financed through the DRC's National REDD+ Fund (FONAREDD).

The conservation of the DRC's forests is crucial to the climate objectives set at the global level. With 60% of the Congo Basin forests, the country has 31.6 million hectares of protected areas, 14.7 million hectares of conservation concessions, and 2.8 million hectares of local community forest concessions.

afrik21.africa

Germany: Wind turbines in forests has a high risk of impairing endangered bat species

On the German mainland, over 30,000 turbines have already been installed, and the industry is currently scrambling to find increasingly scarce suitable sites. As a result, forests are becoming more prominent as potential sites.

A scientific team has now shown that wind turbines in forests harm endangered bat species: common noctules (*Nyctalus noctula*), a species that is at high risk of colliding with rotor blades, are drawn to forest wind turbines if they

The findings show that wind turbines in forests harm common noctules in two ways: noctules face an increased risk of colliding with the turbines if they are built near roosts, and they lose foraging habitat because they avoid wind turbines far from roosts, as per ScienceDaily.

The team concludes in their paper that wind power development in forests should be avoided or, if necessary, undertaken with great care and caution.

The wind turbine should be located at least 500 meters away from bat roosting sites, and any loss of foraging habitat should be compensated for by diverting forests away from wind power (or other anthropogenic activities).

Wind energy production is an important pillar in Germany's energy transition to renewable energies, and it contributes significantly to reducing greenhouse gas emissions.

In Germany, approximately 8% of wind turbines have already been built in forests.

This figure is expected to rise significantly in the coming years as suitable open-space sites become increasingly scarce. "A large number of bat species occur in forests because there are many tree roosts and suitable foraging habitats with a high abundance of insects, their prey," explains Christian Voigt, head of the Leibniz-Department IZW's of Evolutionary Ecology. Among these are species such as the common noctule, which is the most common victim of wind turbines in Germany.

Common noctule populations are declining across Germany, according to the German Federal Agency for Nature Conservation (BfN). It is therefore critical to investigate the interaction of bats with wind turbines in forests.

Voigt and his colleagues used miniaturized GPS loggers to study the space-use behavior of common noctules.

Over 1-2 nights, these loggers recorded the flight paths of 60 bats with high temporal and spatial resolution before automatically disconnecting from each animal.

Bats, as highly social mammals, use exposed structures as meeting places. If wind turbines are located near roosts, this could explain why they frequently approach wind turbines, which rise well above the canopy. The animals are at high risk of colliding with the rotor blades as a result of this.

The authors also discovered that common noctules avoided wind turbines further away from tree roosts. They discovered this after performing data analysis in which all bat GPS locations near roosts were excluded from the analysis. This demonstrated that wind turbines are avoided by bats if they are placed far enough away from roosts.

As a result, the scientists recommend that wind turbines be avoided in forests and that special precautions be taken if no other options are available.

During the approval process, a minimum distance of 500 meters between wind turbines and known bat roosts should be considered, and the loss of foraging habitat in the vicinity of wind turbines should be compensated for elsewhere.

According to Voigt and Reusch, the expansion of wind energy production into forests poses a significant conservation challenge due to the complex interaction of bats with wind turbines in forests.

natureworldnews.com

