Bold vision needed to save forests

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Intensifying climate and biodiversity crises and their impacts on human health and well-being represent an unprecedented global threat. Saving forests is crucial to addressing this emergency. Nations around the world have pledged to permanently protect at least 30 per cent of their lands, including vast forests, by 2030 (the '30 × 30' challenge). Yet we are falling short of this goal while forest degradation continues. As a major historic contributor to the current global crises, the United States has a responsibility to save forests by expanding protected areas, reducing logging and wood consumption, and helping other nations to do the same. Such a bold vision could help re-energize the faltering global 30 × 30 movement.

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We face a planetary emergency – escalating climate instability, loss of biodiversity and devastating impacts on humanity. In 2023, just to take a few examples:

- global temperatures reached the highest levels on record and, for the first time, two days exceeded pre-industrial levels by more than 2°C (Copernicus, 2024);
- twenty-one species were removed from the United States endangered species list due to extinction – an occurrence described by the agency director as "a wake-up call on the importance of conserving imperiled species before it's too late" (US Fish and Wildlife Service, 2023); and
- driven by unsustainable logging and climate change, Canada experienced the worst wildfire season in recorded history, threatening millions of people with evacuation and severe health impacts (Hackett *et al.*, 2023; Mackey *et al.*, 2024).

These crises are interconnected and must be addressed simultaneously (Smith and Young, 2023). An essential strategy is to protect the world's forests

– in particular mature and old-growth forests (DellaSala *et al.*, 2022b). Old-growth forests (also referred to as 'primary' or 'ancient') typically have abundant large old trees, complex and multi-layered tree canopies, natural gaps and accumulated woody debris. Mature forests are of intermediate age and will develop old-growth conditions over time.

Covering 31 per cent of the Earth's land area, forests moderate the climate, absorb and store carbon, sustain biodiversity and support human health and well-being (Food and Agriculture Organization and UN Environment Programme, 2020). Forests are already reduced worldwide by one-third from their pre-agricultural extent (Ritchie, 2021). Just one-third of remaining forests are old-growth (Food and Agriculture Organization and UN Environment Programme, 2020), fewer than half are relatively intact and only 37 per cent of intact forests are protected (World Resources Institute, 2024). Forests outside protected areas continue to be devastated by logging, industrial development and other intensive uses. An area almost the size of Portugal is deforested annually (Food and Agriculture Organization and UN Environment Programme, 2020). Wood demand is projected to increase by 54 per cent from 2010 to 2050 (Peng *et al.*, 2023). This will require logging about 800 million hectares of forest – an area larger than Australia.

In addition to timber production, forests are threatened by so-called 'active management':

- Mature and old-growth forests are logged and deliberately burned – purportedly to reduce wildfire risk and intensity, despite ample evidence that this can actually increase the severity of wildfires while doing tremendous ecological damage (DellaSala *et al.*, 2022a).
- Mature forests are clearcut, burned and sprayed with herbicide to expand early-successional habitats, even though these habitats are already common, target species are not endangered and forest-clearing has harmful environmental impacts (Kellett *et al.*, 2023).
- Vaguely defined 'climate-smart forestry' can include intensive logging, tree plantations and biomass energy, based on the questionable premise that this will increase forest resilience and carbon storage (Cooper and MacFarlane, 2023).

The importance of protected areas

The designation of protected areas is a proven mechanism for addressing the climate, biodiversity and public health crises.

Accelerating climate change has prompted international efforts to sharply reduce carbon dioxide and other greenhouse gas emissions (Intergovernmental Panel on Climate Change, 2023). However, even if emissions were halted now, excess atmospheric carbon dioxide would continue warming the Earth for many decades. Natural systems can help to avoid this by absorbing carbon dioxide from the atmosphere and cooling air temperature to stabilize climate fluctuations (Moomaw *et al.*, 2019; Cook-Patton *et al.*, 2020; Makarieva *et al.*, 2023).

Mature and old-growth forests have accumulated massive amounts of carbon, which increase continually with tree size and age (Moomaw *et al.*,

2019). About 33 per cent of human-caused carbon dioxide emissions are absorbed by forests each year (Forzieri *et al.*, 2022). Intact forests moderate local and global climate by maintaining cooler temperatures, regulating precipitation patterns and buffering extreme weather (Makarieva *et al.*, 2023). They are more resistant to wildfire than logged forests (DellaSala *et al.*, 2022a).

Deforestation and forest degradation worsen climate change by releasing greenhouse gases and raising local temperatures. Intensified logging in response to surging wood demand is projected to increase global greenhouse gas emissions from about three billion tons in 2010 to five billion tons in 2050 (Peng *et al.*, 2023). Logging is responsible for 86 per cent of US forest carbon released each year – greater than all other disturbances combined (Harris *et al.*, 2016). After logging, it can take many decades for trees and soils to regain the carbon lost and for climate-moderating forests to recover.

Protected areas keep primary and old-growth forests intact while allowing younger forests to grow and reach their full ecological potential through proforestation and natural regeneration (Moomaw *et al.*, 2019; Cook-Patton *et al.*, 2020). This is the only verified, low-cost, large-scale strategy for safeguarding forest carbon storage, drawing down atmospheric carbon dioxide and increasing climate stabilization within the critical next few decades.

In addition, forests harbour most of the Earth's terrestrial biodiversity, including more than 73,000 tree species and habitats for 80 per cent of all amphibian species, 75 per cent of birds, and 68 per cent of mammals (Food and Agriculture Organization and UN Environment Programme, 2020). Old-growth forests, with their complex structures, natural gaps, abundant deadwood and self-sustaining ecosystems, have exceptional levels of biodiversity compared to logged forests (DellaSala *et al.*, 2022b).

Logging is a primary driver of global forest degradation (Brondizio *et al.*, 2019). Such human-caused exploitation is causing the loss of biodiversity at historically unprecedented rates, threatening up to one million species with extinction. An extensive review found that logging is contributing to the decline of more than 4,000 forest-dependent species on the International Union for Conservation of Nature Red List of Threatened Species (Maxwell *et al.*, 2016).

Protected areas are crucial in preventing biodiversity loss (Smith and Young, 2023). By preserving existing old-growth forests and permitting proforestation and natural reforestation, they expand old-growth ecosystems with high levels of biodiversity (Moomaw *et al.*, 2019). Protected wildlands act as a buffer that can reduce the risk of species extinctions to half that of non-wildland areas (Di Marco *et al.*, 2019).

Along with their crucial roles with respect to climate stabilization and biodiversity, forests are also essential life-support systems for billions of humans (Food and Agriculture Organization and UN Environment Programme, 2020). They supply valuable natural resources and vital biophysical benefits such as air and water purification, soil conservation, infectious disease control, waste absorption and local climate cooling and regulation (Stolton and Dudley, 2010).

The biophilia hypothesis holds that humans have an innate biological, genetic, and emotional connection to nature (Gaekwad *et al.*, 2022). People, especially children, who spend time in natural surroundings have improved health and cognitive functions, stronger motor coordination, reduced stress, and enhanced social skills (Rowland-Shea *et al.*, 2020). For many Indigenous communities, cultural and spiritual relationships with ancestral lands are integral to their way of life (Brondizio *et al.*, 2019).

Protected areas provide a wide range of well-being benefits for human beings. They are natural, healthy places for public recreation, spiritual renewal and nature study (Stolton and Dudley, 2010). They support vibrant economies and quality of life for local communities (Flyr and Koontz, 2023). Under careful stewardship, they can be sustainable sources of natural medicines and materials for local people (International Union for Conservation of Nature, 2015).

The 30 × 30 Challenge

Nations around the world have pledged to halt and reverse forest degradation. Most have endorsed the '30 × 30' challenge – the protection of 30 per cent of the Earth's lands and waters by 2030 – and as much as 50 per cent ('Half-Earth') by 2050 (Convention on Biological Diversity, 2022; Intergovernmental Panel on Climate Change, 2023). Yet only about seventeen per cent of terrestrial areas have been adequately protected.

Although these concerns are global, the US is pivotal. It has high rates of logging and clearing and is a top producer and consumer of forest products. It lags behind countries such as Venezuela, Cambodia and Tanzania in forest protection (World Resources Institute, 2024) and has low levels of wood reuse and recycling. Yet, the US still contains significant mature and old-growth and other recovering forests (DellaSala *et al.*, 2022b).

The US Government has committed to reaching the 30 × 30 target (US Department of the Interior *et al.*, 2021). However, only thirteen per cent of its land base is permanently protected (US Geological Survey, 2021) and meets the robust standards of International Union for Conservation of Nature categories I-IV (Stolton and Dudley, 2010; Food and Agriculture Organization and UN Environment Programme, 2020) and US Geological Survey categories GAP 1 or GAP 2, such as national parks, wilderness or wildlife refuges (Dreiss and Malcom, 2022).

Reaching the 30 per cent goal will require more than doubling current US protected areas. Most federal public lands administered by the National Park Service and US Fish and Wildlife Service have GAP 1 or 2 protection. However, vast Bureau of Land Management and US Forest Service lands – including the bulk of federal mature and old-growth forests – remain open to logging and other intensive management (DellaSala *et al.*, 2022b).

Forest protection should be a top priority for US policymakers. Yet, they have not produced a plan to significantly expand GAP 1 or GAP 2 protected lands. Indeed, due to political pressure, they have diluted the definition of 'protected' to include working farms, ranches, and timberlands (US Department of the Interior *et al.*, 2021).

The National Parks solution

In 1872 the US took bold action in establishing Yellowstone as the world's first national park. Since then, the park has secured one of the last and largest nearly intact natural ecosystems on Earth. The designation of Yellowstone inspired a global park movement; more than 100 countries have since created thousands of national parks.

Today, US conservationists have another bold idea – create 100 new or expanded parks across the country (RESTORE: The North Woods, in press). Three-quarters of these parks would simply transfer Bureau of Land Management and US Forest Service lands to the National Park Service for designation as national parks by the US Congress, or national monuments by the President. This would triple the size of the existing park system and increase protected lands in the US from thirteen per cent to 21 per cent of the land base.

New US national parks would relieve growing pressure on existing parks, which receive 300 million annual visits. They would bring parks closer to millions of people in urban areas and other regions without adequate access to large protected areas. They would promote economic diversification and enhanced quality of life in local communities (Flyr and Koontz, 2023).

US national park expansion is entirely feasible. Even in these times of political discord, there remains broad support for 30 × 30, and new national parks and monuments (State of the Rockies Project, 2024). A new parks campaign has the potential to unite people behind a positive vision for saving the forests and other natural systems of the US.

Conclusion

Halting and reversing forest destruction and degradation by 2030 is a global priority. Yet, this goal will not be reached at the present rate of protection. Bold action is needed to re-energize and focus this faltering campaign.

The US has an opportunity, and responsibility, to help lead accelerated protection efforts, both at home and worldwide. In addition to expanding its national parks, the US needs to:

- provide GAP 1 or 2 protection for most other existing Bureau of Land Management and US Forest Service lands;
- promote similar protection for key state, municipal, tribal, non-governmental organization and private lands;
- acquire more public lands and give them GAP 1 or 2 protection;
- enact laws and policies to decrease wood consumption and waste, increase recycling and reuse, utilize alternative materials, rehabilitate existing buildings and curtail wood bioenergy; and
- commit resources to help other nations and Indigenous peoples to protect and restore their own forests.

Now is the time for those in the US who support 30 × 30 or Half-Earth to coalesce and promote such an agenda on a national and global scale. This includes prominent organizations such as Center for Biological Diversity,

Defenders of Wildlife, E.O. Wilson Biodiversity Foundation, Natural Resources Defense Council, Nature Needs Half, Rewilding Institute, Sierra Club, and The Nature Conservancy; regional, state, and local organizations; scientists and experts on climate, biodiversity, and public health; and countless concerned citizens across the US.

In early 2024, more than 200 leading scientists and an equal number of environmental organizations laid the potential groundwork for dramatic expansion of US protected areas. They urged the President to implement a moratorium on logging of federal mature and old-growth forests and commit to their permanent protection (Schueman, 2024). This kind of tangible and decisive action is needed worldwide.

The challenge is daunting, but we know what is needed to save our forests. We have the tools; we need the vision and political courage to use them. The result will be extraordinary long-term benefits to the US and to all nations around the world. There is no time to lose.

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