Only 17 percent of free-flowing rivers are protected, new research shows

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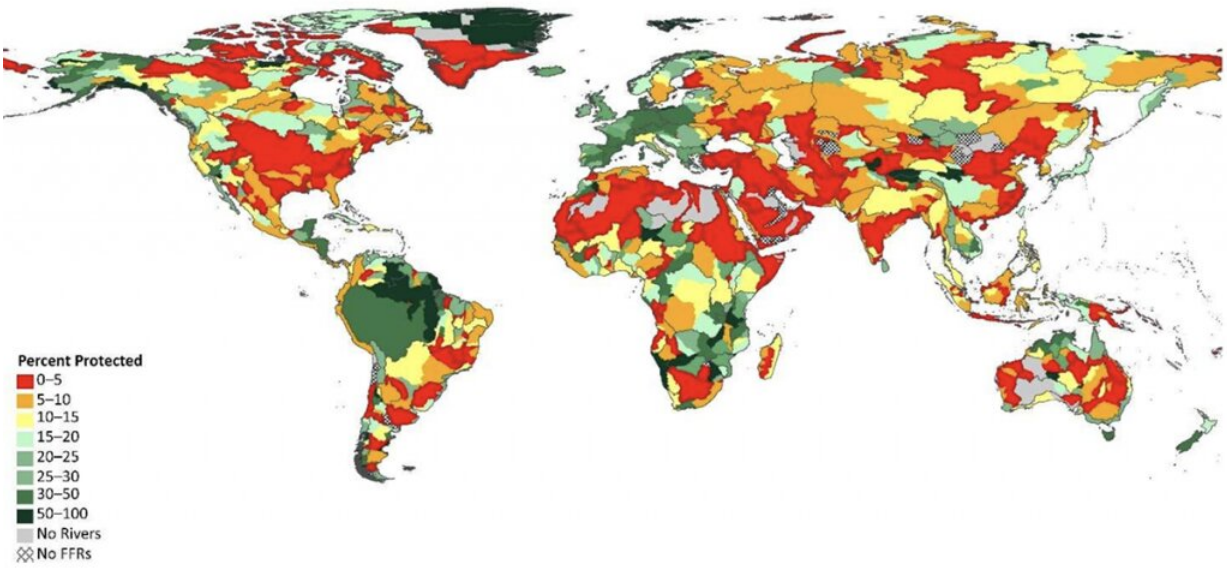

The percentage fo free-flowing river kilometers that are within protected areas within major river basins (Level 4 basins, as defined by HydroSHEDS). Credit: World Water Fund

New science about the fate of freshwater ecosystems released today by the journal *Sustainability* finds that only 17 percent of rivers globally are both free-flowing and within protected areas, leaving many of these highly-threatened systems—and the species that rely on them —at risk.

"Populations of freshwater species have already declined by 84 percent

on average since 1970, with degradation of rivers a leading cause of this decline. As a critical food source for hundreds of millions of people, we need to reverse this trend," said Ian Harrison, freshwater specialist at Conservation International, adjunct professor at Northern Arizona University and co-editor of the journal issue.

As the world looks to establish new conservation targets at the UN Convention on Biological Diversity meeting later this year, scientists are calling on policymakers to prioritize increasing protection of freshwater ecosystems and species and to better integrate land and water conservation.

Free-flowing rivers and other naturally functioning freshwater ecosystems sustain biodiversity and the food supply chain, drinking water, economies and cultures for billions of people worldwide. Therefore, their protection is critical to sustain these values," said Jonathan Higgins, senior freshwater science advisor at The Nature Conservancy

A newly formed coalition of water resource experts—including representatives from academia as well as the World Wildlife Fund (WWF), Conservation International and The Nature Conservancy, among other entities— coordinated this first-of-its-kind collection of papers focused exclusively on durable protections for free-flowing rivers, with the aim of offering a blueprint to policymakers so they can integrate the best available science into environmental action plans. There is no global framework focused specifically on river protection, and freshwater protection receives less attention and funding than comparable efforts for marine and terrestrial systems.

The collection of 15 studies with authors from throughout the world offers examples of free-flowing river protections through the application of scientific research, law, policy and on-the-ground implementation of

restoration and management strategies.

It is co-edited by Denielle Perry, a water resource geographer who leads the Free-flowing Rivers Lab in the School of Earth and Sustainability at NAU, and Harrison, who also is co-chair of the Freshwater Conservation Committee of IUCN's Species Survival Commission. Both are founding members of the Durable River Protection Coalition, which is working to enable scientific research and policy proposals to help local communities , national governments, international institutions and private and public investors better protect these valuable but vulnerable resources.

"These ecosystems are among the most understudied and under-protected in the world, and they are at risk from further severe alteration and degradation by a range of threats, including poorly sited dam construction, overfishing, excessive water extraction and pollution," Perry said. "This first-of-its-kind collection addresses growing calls to protect rivers as corridors in a changing climate and for the important role they play in providing ecosystem services and livelihoods around the world. We are at a moment when climate change and policy will shape the path of development, and the management of our riverine resources. We must act to protect rivers now because failing to do so will have lasting consequences for decades to come."

The article topics range from global assessments to local case studies, including discussion of a framework that defines durable river protection, safeguarding free-flowing rivers through various policy mechanisms, adaptive management of the Malkumba-Coongie Lakes Ramsar site in Australia, the biological and cultural importance of sustainable floodplains in North Africa and more. The issue also features rivers in India, Mongolia, Mexico, China and the United States. Several articles take an in-depth look at a specific freshwater ecosystems and offer insights that can be applied elsewhere.

"The recommendations made in this special issue for more forward-thinking protections and wise use of our inland aquatic resources are timely. Wetlands are a powerful nature-based solution to the many challenges the world is facing. Taking action now for wetlands is foundational for creating the future we want," said Martha Rojas Urrego, Secretary General of the Ramsar Convention on Wetlands.

As policymakers gather virtually this month to develop new global conservation goals, experts are calling for improved global targets for river protection. There is clear scientific evidence for the value of free-flowing rivers, including their ability to sustain migratory fish and to deliver the sediment needed to maintain river deltas—home to 500 million people and some of the most productive agricultural land on the planet—and prevent them from sinking and shrinking. Due to these values, researchers are calling for increased protections for free-flowing rivers as part of river basin management strategies.

"While 17 percent of all free-flowing rivers are within protected areas, in most countries the level of protection for large rivers is far lower," said Jeff Opperman, WWF's global lead freshwater scientist. "It's these large rivers that are most crucial for supporting fisheries that support rural communities."

More information: Special Issue: Durable Protections for Free-Flowing Rivers. www.mdpi.com/journal/sustainab … _free-flowing_rivers

Provided by Northern Arizona University